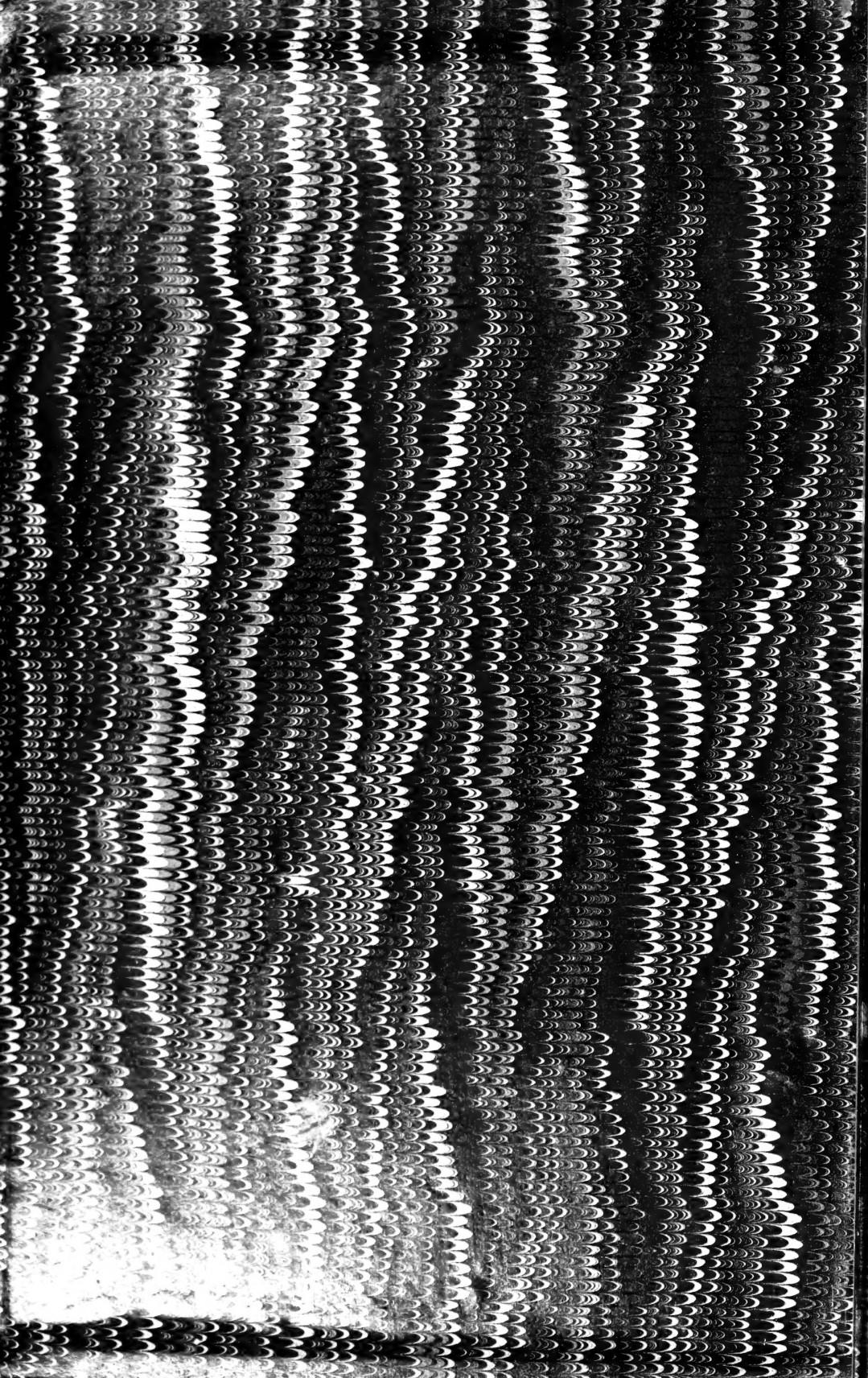
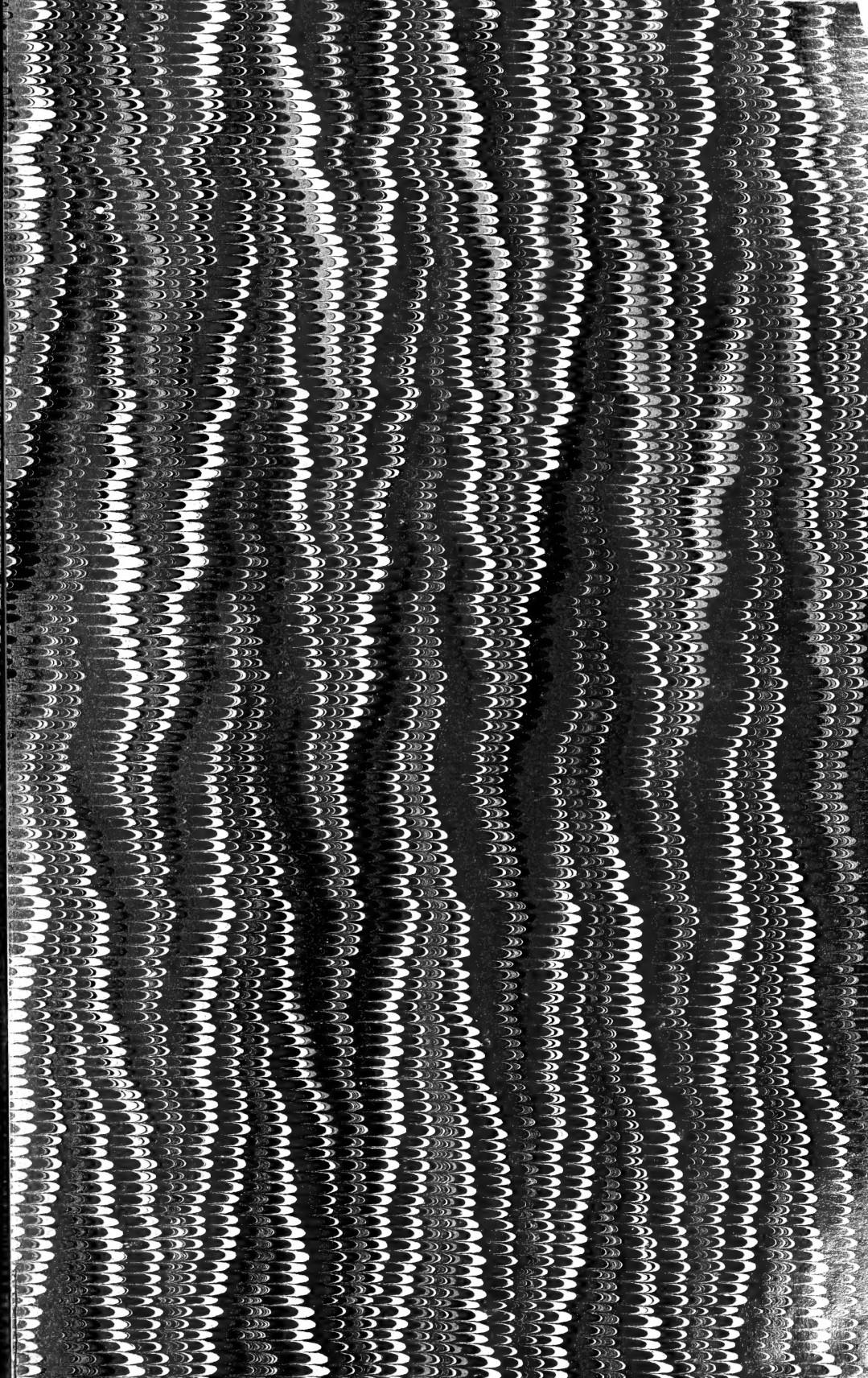


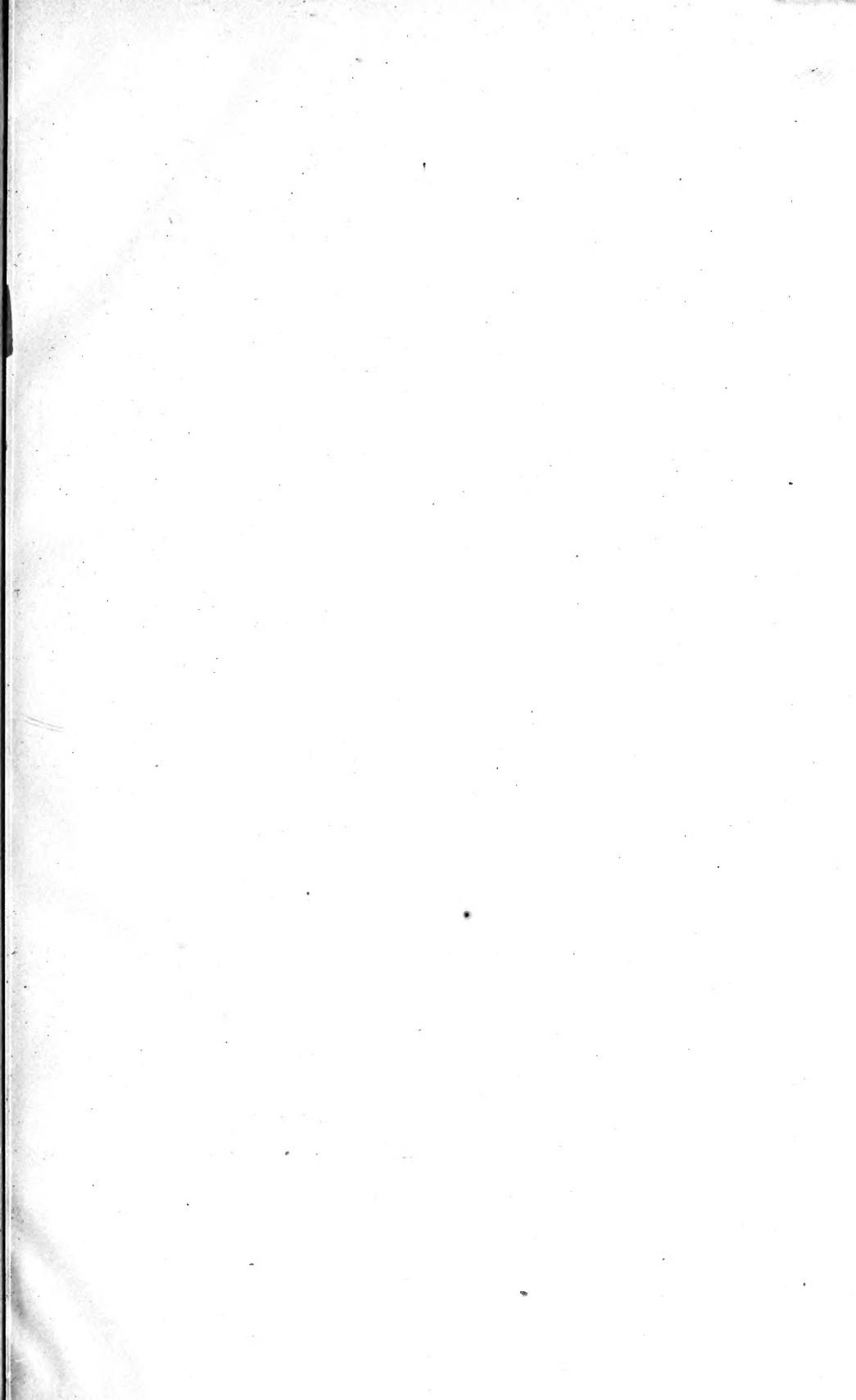


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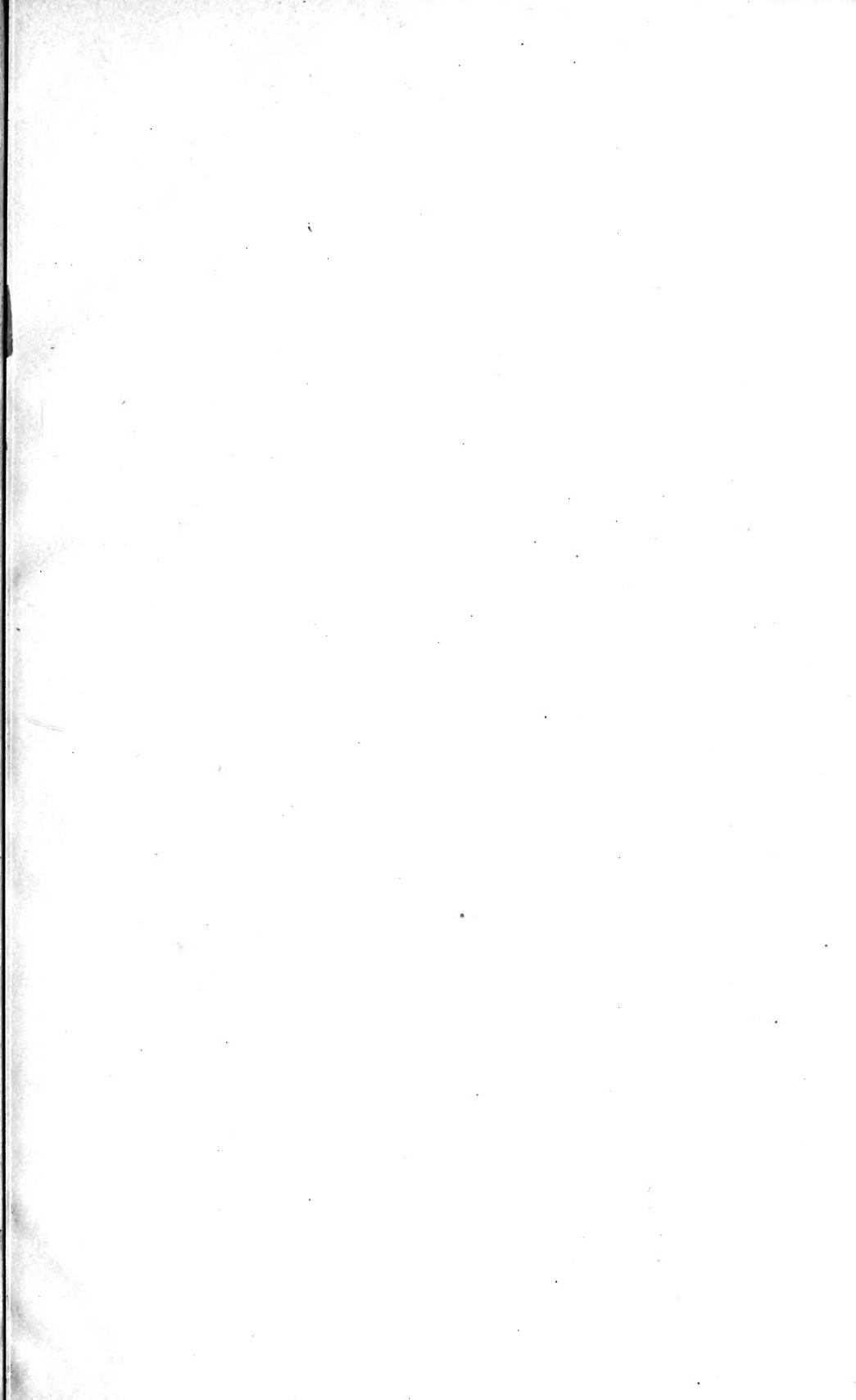












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APPLETONS'

ANNUAL CYCLOPÆDIA

AND

REGISTER OF IMPORTANT EVENTS

OF THE YEAR

1886.

EMBRACING POLITICAL, MILITARY, AND ECCLESIASTICAL AFFAIRS; PUBLIC DOCUMENTS; BIOGRAPHY, STATISTICS, COMMERCE, FINANCE, LITERATURE, SCIENCE, AGRICULTURE, AND MECHANICAL INDUSTRY.

NEW SERIES, VOL. XI.

WHOLE SERIES, VOL. XXVI.

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1889.

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P R E F A C E .

THE year 1886, though not notable for any political movement in our country, or any great war in foreign lands, presents so much that is interesting and important in the movement of peaceful events, that there is an embarrassment of riches for this volume of the *ANNUAL CYCLOPÆDIA*. The usual excellent digest of the proceedings in Congress, this time covering a long session, will be found under its appropriate head; the year's history for all the great countries of the world is given, with the usual classifications; and most of the articles on the States of our Union are very full. The remarkable progress of American cities in the past ten years is shown in "Cities, Recent Growth of," where eighty-six of them are recorded in a form convenient for ready reference and comparison. These articles have been carefully condensed from a large mass of matter obtained from good authorities in the several cities; and the intention is to continue the subject with other cities in the next volume. Besides the general city articles, those on Albany and New York are especially interesting—the one for its bi-centennial celebration, and the other for the unveiling of Bartholdi's Statue of Liberty. The article on Music, showing what has been done, in recent years, in the higher walks of the art, is a new feature, supplementing the record of Fine Arts, which was introduced for the first time last year and is continued in this volume.

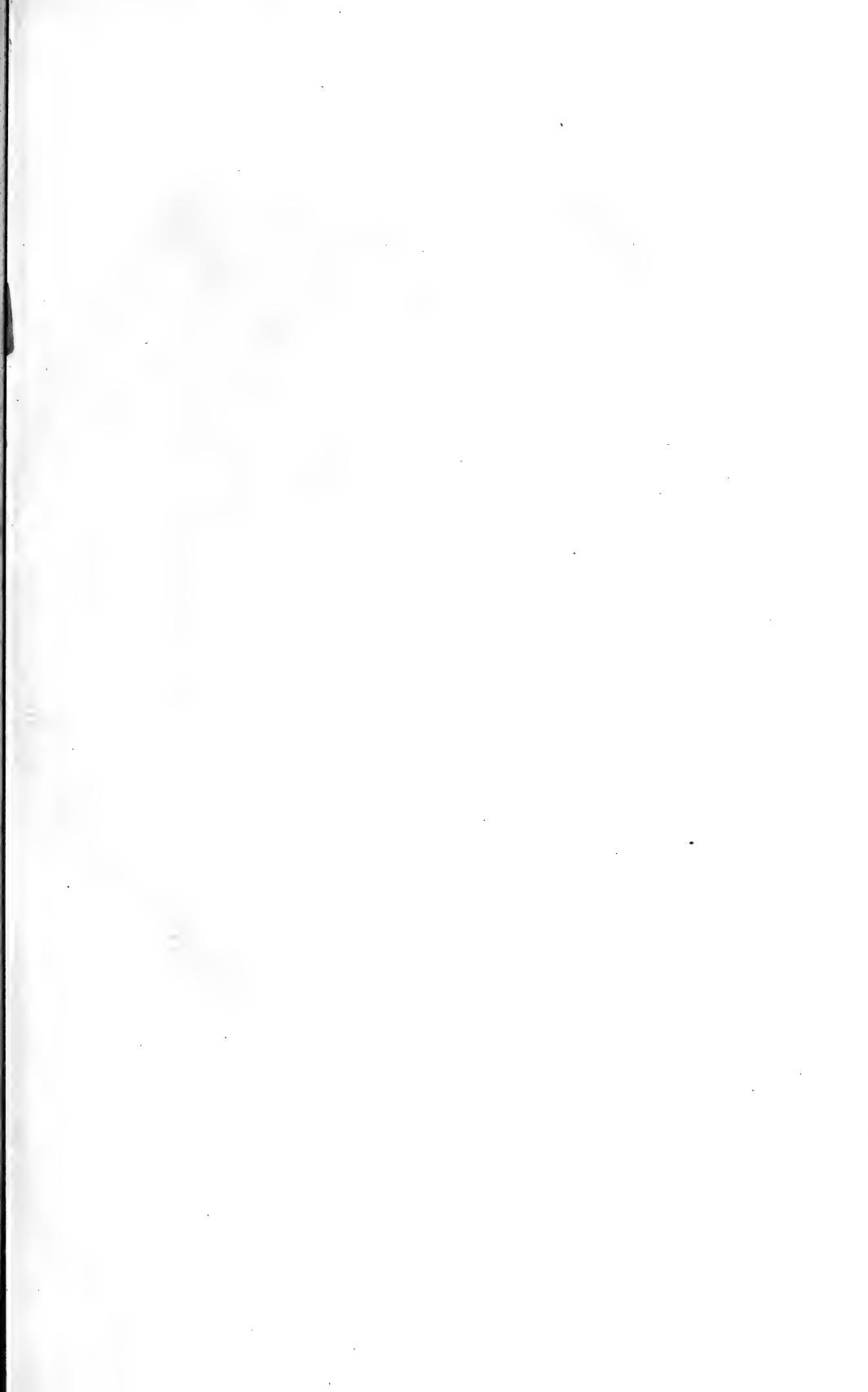
The death-roll is the most remarkable of any in recent years. It includes the names of one ex-President of the United States, Chester Alan Arthur, three candidates for the presidency—Horatio Seymour, Samuel J. Tilden, and Winfield Scott Hancock—and two candidates for the vice-presidency—Charles Francis Adams and John Alexander Logan—the candidacy of the two last named being more than a generation apart, and separated by the mightiest events of our history. The power of these events is illustrated in the contrasted careers of the two men. When Adams was the Free-Soil candidate, Logan was a pro-slavery Democrat; but at the time of their death, Logan was one of the extremists of the party that wrought emancipation, while Adams had practically gone over to the Democrats. Besides these, we lost in 1886 other historical characters, including General David Hunter, who anticipated President Lincoln in the policy of emancipation; Hon. David Davis, Mr. Lincoln's intimate friend; Asher B. Durand, the Nestor of American artists; and John

B. Gough, the most eloquent and eminent apostle of temperance. Literature has lost Paul Hayne, the Southern poet; and medicine Dr. Austin Flint. Among the noted men of Europe that have died are King Ludwig of Bavaria; Leopold von Ranke, the veteran historian, whose early work furnished Macaulay a subject for one of his most brilliant essays; Franz Liszt, the musician; Count von Beust, William E. Forster, and Archbishop Trench.

Among the other notable events in our own country were the disturbances in South Carolina, described under EARTHQUAKES, and the threatened social earthquake in Chicago described under ANARCHISTS. The progress of Cholera is noted under that head, the great works in Engineering are described with many illustrations, and the remarkable activity of the Iron and Steel industry is duly set forth.

Among the occasional articles the reader will find an interesting one on Library Economy, which is supplemented by a paragraph on the growth of free public libraries, in the article on New York City, both written by a veteran librarian; one on Bird-Songs, by a gentleman who has made a special study of that subject, with numerous dissections and experiments; one on Mushrooms and Toadstools, also by an authority; one on the recently revived theory of the Sea-Serpent, showing the form of the story in successive ages, and how it has grown; one on Recent Progress in the Higher Education of Women, by the Rev. J. Ryland Kendrick, D. D., ex-President of Vassar; one on Snow-Shoeing, the latest fashion in sports, by a snow-shoer; two that present new theories of the old subjects of Mirage and the Moon, by a skillful astronomer; a carefully prepared and valuable article on the Law of Railroad Accidents, showing how the statutes of the various States deal with the subject; and articles partly curious and partly useful on Cable-Railways, Crab-Farming, Cyclorama, Fair-Trade League, Faith-Cure, Game Laws, Natural Gas, Artificial Ice, Trained Nurses, Newspapers in the United States, Red-Cross Society, and other subjects. Many of these articles are profusely illustrated, and that on Earthquakes is supplemented by a colored chart.

NEW YORK, April, 1887.





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F.J.I.

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The Illustrations were drawn by JACQUES REICH AND EDWARD L. CHICHESTER.

THE
ANNUAL CYCLOPÆDIA.

A

ABYSSINIA, a monarchy in eastern Africa, comprising the kingdoms of Tigré, Amhara, and Shoa, and the provinces of Lasta, Waag, Godjam, and Kivara. The area is estimated at 200,000 square miles, and the population at 4,000,000. The reigning monarch is the Prince Kassai of Tigré, who was supplied by the British with arms when they left Abyssinia in 1868, after overthrowing King Theodore, and who, under the name of King John, was proclaimed Emperor of Ethiopia in 1872, after defeating the Prince of Amhara. The dependent kingdoms of Tigré and Shoa have been frequently in a state of rebellion against the Negus, who resides in Gondar.

The Italians at Massowah.—The Italians in February had constructed land and sea defenses, and armed redoubts, with numerous heavy and light guns. The garrison consisted of three battalions, numbering 3,000 men. There were besides Nubian Bashi-Bazouks, who served as escorts to protect caravans from robbers. The trade in hides and in ivory from the Soudan was brisk. The Italians treated the natives with consideration, and Gen. Gene, the commandant, was friendly with the Hababs.

Italian Mission to King John.—Gen. Giorgio Pozzolini, accompanied by the Cavaliere Bardi and Dr. Nerazzini, was dispatched in January on a mission from the Italian Government to the Negus. The Italian Cabinet hoped not merely to establish friendly relations with King John, but, through the possession of the seaport of Massowah, to acquire political influence and commercial ascendancy in Abyssinia. The embassy was empowered to negotiate for the station of Keren in the mountains, which would afford a healthful summer retreat for the Italian soldiers. The concession offered in return was that no duty should be imposed on exports from Abyssinia. The Italian envoys set out for Abyssinia at a time when King John had just returned from suppressing a rebellion. They bore a letter to Menelek, King of Shoa, who is a vassal of the Negus, address-

ing him as an independent sovereign, and explaining to him that the Italians had taken possession of Massowah in order to assist the English against the Soudanese. Menelek was frightened at receiving this letter, and forwarded it to King John, who became enraged at what he deemed an intrigue against his sovereignty, and refused to allow the mission to enter his territory. Captain Harrison Smith, who visited the Negus soon afterward with messages from the English Government, was received cordially.

Intercourse with Russia.—The Russians turned their attention to Abyssinia as a field for colonial enterprise, and sought some bond of sympathy with the rude form of Christianity existing there, for their ostensible motive. Free Cossacks who aided in the Russian conquest of the Transcaspian were encouraged to go to Africa as pioneers of Russian influence. Some enlisted under the successor of the Mahdi, while the Ataman Ashinoff, who formerly had difficulties with the Persian and the Turkish authorities, went on an embassy with presents to King John, and was well received. The Abyssinian Negus had made the first overtures for an intimacy with Russia in order to seek a protection against the approach of Italy, or new aggressions on the part of England or some other power. He was disposed, also, to form an ecclesiastical connection with the Russian Church, with which the Coptic religion has a closer affinity than with the churches of the West, with the object of introducing some of the benefits of civilization with purer forms of worship, and of emancipating his country from Egyptian and Mohammedan influence incident on the subordination of the Abyssinian Patriarch and clergy to the Patriarch of the Copts, who is a subject of the Khedive.

ADAMS, CHARLES FRANCIS, American diplomatist, born in Boston, Mass., Aug. 18, 1807; died there, Nov. 21, 1886. Mr. Adams was a grandson of John Adams, and son of John Quincy Adams, Presidents of the United States.

When two years old, Charles Francis was taken to St. Petersburg, Russia, where he

minister to England. As the civil war was in progress in this country, and the sympathies of the upper classes in England were largely with the Confederacy, the diplomatist found occasion for graver defense of his country than when he met the school-boys at fisticuffs. He was obliged to deal with some of the most complicated and delicate questions that can arise between nations, notably the capture of the Confederate commissioners, Mason and Slidell, and the building of the "Alabama" and other Confederate cruisers in British ports. In all of these Mr. Adams showed himself the wise and patriotic statesman. He was as far as possible from being the wily and intriguing diplomatist, but his bold and outspoken methods were only equaled by his determination and command of himself. He spent seven years in official life in England, and on his return retired to private life. He was made President of the Board of Overseers of Harvard College. He published numerous addresses and orations, and edited the memoirs and works of his father and grandfather, in 22 octavo volumes. (See steel portrait in the "Annual Cyclopædia" for 1871.)

ADVENTISTS, SEVENTH-DAY.

A history of the origin and progress of the

Seventh-Day Adventist Church was prepared by direction of the General Conference and published in the "Year-Book" of the denomination for 1886. From this account it appears that the formation of the Church was one of the indirect results of the preaching by William Miller, in 1840 and the following years, that the fulfillment of the prophecies of the second coming of Christ would take place in the year 1843. The passing away of that year without any evident verification of Mr. Miller's predictions produced various effects upon the minds of those who had put faith in the calculations on which they were based. A very considerable number of them still adhered to the belief that the prophetic period ended according to the interpretation that had been placed upon it, but concluded that a mistake had been made regarding the character of the events by which the ending was to be marked. Later in the year 1844, Mrs. Rachel D. Preston, a Seventh-Day Baptist, removed from New York to Washington, N. H., where a company of Adventists, holding to this view, were living. Becoming acquainted with them, she embraced the doctrine of the near coming of Christ, while they received from her the doctrine of the seventh day as the only true Sabbath; and, as this doctrine continued to be agitated through the ranks of the disappointed Adventists, "many embraced it with joy." Further



CHARLES FRANCIS ADAMS.

learned to speak Russian, German, and French. He was still a child when his father was appointed United States minister to England, and he was placed in an English school. It was just after the close of the War of 1812, and our relations with the mother-country were so unpleasant that the boy learned to use literal knock-down arguments in defending his native land. When the family returned to America, he was placed in the Boston Latin school, and in 1825 graduated at Harvard College. His father was then President of the United States, and Charles Francis spent two years in Washington, after which he was sent to study law in the office of Daniel Webster. His admission to the bar was obtained in 1828, and in the following year he married Miss Brooks, whose older sisters were the wives of Edward Everett and Rev. Nathaniel Frothingham. In 1831, and for five years thereafter, he was a member of the Massachusetts Legislature. He was a Whig, but so independent that in 1848 the Free-Soil party nominated him for Vice-President, on the ticket with Martin Van Buren. The ticket was, of course defeated, but from the movement sprang the Republican party, which in 1858 elected Mr. Adams to Congress, to represent the Third District of Massachusetts, and re-elected him in 1860. In 1861 President Lincoln appointed him to the post that had been held by his father and grandfather, that of United States

investigation led to the conviction that the cleansing of the heavenly sanctuary was the work entered upon at the ending of the 2,300 days of Daniel viii, 14, "or, in other words, the commencement of the investigative judgment. Thus was the great disappointment of 1843 fully accounted for, and Seventh-Day Adventists have ever since believed that the great Advent movement of 1840-'44 was in the order of Providence, and an exact fulfillment of the word of God." "The Advent Review and Sabbath Herald," which has continued to be and still is the leading organ of the denomination, was started by Elder James White at Paris, Maine, in 1850, and was afterward removed successively to Saratoga Springs and Rochester, N. Y., and to Battle Creek, Mich., its present location, where the Seventh-Day Adventist Publishing Association was incorporated in 1861. The statisticians of the denomination compute the number of believers in its doctrine throughout the world at between 25,000 and 30,000. They are to be found in every State and Territory of the United States, and in Canada, South America, most of the countries of Europe, Asia, Australia, New Zealand, the Sandwich Islands, and elsewhere. About 300 ministers are engaged in spreading throughout the world the knowledge of the doctrine by means of public lectures, Bible-readings, the circulation of books and periodicals, personal visitation, and correspondence. Six publishing houses issue 21 periodicals, in the English, German, Danish, Swedish, French, and Roumanian languages, and represent an aggregate invested capital of about \$400,000. The aggregate valuation of school property is about \$165,000; and the sanitary institutions at Battle Creek, Mich., and St. Helena, Cal., which are managed by incorporated organizations of Seventh-Day Adventists, represent other considerable amounts of invested capital. About 50 State conferences and camp-meetings were held during 1885, and were attended by probably 125,000 persons. A mission has been opened in Australia, and the English mission has been extended into Scotland, Ireland, and Wales. The circulation of denominational, health, educational, and temperance literature, is carried on by the International Tract and Missionary Society, assisted by 28 State auxiliary societies and about 10,000 agents. The aggregate number of members in Sabbath-schools is not far from 18,500. The American Health and Temperance Association, with 16 auxiliary associations and about 15,000 members, is another peculiar feature of the Seventh-Day Adventists.

The statistical reports of the Seventh-Day Adventist Church showed that it had at the end of the year 1885 in 28 conferences in the United States and Canada, and in the British, General Southern, and Scandinavian missions, 186 ministers, 151 licentiates, 741 churches, and 20,547 members, and that the whole amount of the contributions to the Systematic

Benevolence fund was \$122,641. These returns show increase from the previous year of 10 ministers, 6 licentiates, 36 churches, 1,845 members, and \$17,098 of contributions. Of members outside of the United States, 127 were in Canada, and 68 in the British and 142 in the Scandinavian missions, while 245 members were enrolled in the General Southern mission within the United States. The numbers include only those who are enrolled as members of organized churches. It is estimated that there are at least one fourth as many more who, from their isolated situation or other causes, are not yet connected with any churches, and that, if these were included, the whole number of Seventh-Day Adventists would be about 26,000. The International Tract and Missionary Society reported that its receipts had been, including a balance from the previous year, \$5,892, and its expenditures \$5,849. The General Sabbath-School Association reported receipts to the General Fund of \$134, and to the Publishing Fund of \$444. The Seventh-Day Adventist Publishing Association had property and goods valued at \$154,580 above its indebtedness, and returned a net profit on its year's business of \$7,360. It publishes a general denominational newspaper; a youth's paper; a hygienic journal; Danish, Swedish, and German papers; a Sabbath-school paper, and a paper devoted to evangelistic work. Its sales for the year amounted to \$61,785. Other publishing-houses are at Oakland, Cal. (value \$100,000), where three journals are published; Basel, Switzerland (value \$25,000), whence are issued a French, a German, an Italian, and a Roumanian paper; Christiania, Norway, where two Danish and two Swedish papers are printed; Grimsby, England, and Sumarlide, Victoria, Australia.

The resources of the Seventh-Day Adventist Educational Society were returned at \$46,322 above its indebtedness. The principal educational institution is Battle Creek College, Mich., which has classical, scientific, English, biblical, and preparatory departments. Other institutions are South Lancaster Academy, Mass., having academic, biblical, and industrial departments, and Healdsburg College, Cal., with five departments. Steps have been taken toward establishing a denominational educational institution in Europe.

The Health Reform Institute returned a net valuation of \$136,841; receipts for the year of \$87,654, and a year's net profit of \$3,529. It maintains a sanitarium, or health institute, at Battle Creek, Mich. Another health institute is situated at St. Helena, Cal.

The General Conference of Seventh-Day Adventists met in its twenty-fourth annual session at Battle Creek, Mich., Nov. 18, 1885. Mr. George I. Butler presided. In the reports on the condition of the denomination, representations were made concerning missionary or evangelistic work in various parts of the United States and Territories, Canada,

Australia, the Sandwich Islands, and Russia. The question was brought up of what attitude should be assumed by the denomination toward indictments for working on Sunday, which were beginning to be numerous in some of the States. Prosecutions had already been carried out against Seventh-Day Adventists in Tennessee and Arkansas for offenses against the State laws by working on Sunday, and the cases of the defendants had been carried up on appeal to the Supreme Courts of those States. The committee to which the subject was referred made a long report upon it, setting forth some of the reasons of the "Sabbath-keepers" for their practice, and advice in the matter, which was adopted by the Conference. Its principal points are: 1. The divine commandment to keep the seventh day as the Sabbath is obligatory, and allows of no option. 2. It is not only a most solemn duty to obey the precept of the law, but the God-given right is also claimed of enjoying the permission contained in the law, and the right of any government to take it away is denied. This permission is to work six days in the week. 3. When laws are enacted which take away the rights given by God, and which are used to hinder the keeping of his law, the authority of the Scriptures is given to obey him and keep his commandments, even at the expense of suffering the penalties of human enactments. 4. The *dictum* of the courts that the law forbidding all labor on Sunday is no infringement of the rights of any, is denied, for it would compel "Sabbath-keepers" to rest two days of the week. 5. Evidence was presented in support of the assertion that the arrests were acts of persecution. In view of the considerations presented, brethren were advised to "continue, in a peaceable and quiet manner, to obey God in keeping the seventh day," and to exercise their natural and religious right to work six days; in case of prosecution, to secure the best and most upright counsel; if convicted, to take an appeal to the Supreme Court of the State; if the conviction is affirmed then, to avoid paying fines, if possible, and suffer imprisonment instead; and, the adverse decision having been established, to contest no more cases, but let them go by default, and suffer the consequences.

On the question, "If a contractor sublets a part of his work, and the sub-contractor does work upon the Sabbath, is the contractor responsible?" the Conference, after considering in detail the difficulties presented under such conditions, expressed the opinion that a strictly conscientious regard for the Sabbath on the part of the contractor would guard him from making a contract which would wound his conscience, or give the world occasion to reproach him.

The Conference declared that it was neither consistent nor expedient to receive into the churches persons who hold to trine-immersion, and directed a work on the subject to be pre-

pared in the German language. A plan was adopted for calling attention to camp-meetings wherever they are held, by advertising, hand-bills, and the circulation of papers and cards of invitation. For the purpose of training evangelistic laborers, it was recommended that every conference, having within its boundaries cities of sufficient size to make such a step desirable, should establish at least one mission where candidates may be taught in connection with actual work. It was also advised that each of the missions should have connected with it a man and his wife. Stress was laid, in resolutions and reports, on the importance of ministers making their labors more of an educational character than of merely sermonizing, and of their becoming thoroughly informed. The jurisdiction of local elders was defined to be limited to the church which elects them, or, as the only extension allowable, to a church to which the elder may be sent, under special circumstances, by the Conference committee. Steps were taken with reference to having prepared a special history of the missions of the denomination. Appropriations were made of \$15,000 for the Central European mission, \$15,000 for the Scandinavian mission, \$5,000 for the English mission, \$5,000 for the Australian mission, \$10,000 for the International Tract Society, and \$10,000 for the support of city missions.

AFGHANISTAN., a monarchy in Central Asia. The ruler, called the Ameer, is Abdurrahman Khan, who resides in Cabul. He was placed on the throne under British protection, and is bound by treaty to follow British advice in his foreign relations, and the British Government is under a treaty obligation to aid him in repelling unprovoked aggression on his dominions. He receives a subsidy of a lac of rupees per month from the Indian Government. The Afghan tribes inhabit the mountainous region forming the valleys of the Cabul, Helmund, and Argandab rivers, and lying between the Hindoo-Koosh and Kohi Baba ranges on the northwest and the Soliman Mountains on the southeast. The Ameer rules also, as conquered provinces, the district of Herat, peopled mostly by a Persian race, and the northern slopes of the Hindoo-Koosh, as far as the Oxus river, which are inhabited by Tadjiks, Uzbecks, and semi-nomadic Turkomans.

Frontier Commission.—The British and Russian Governments appointed a mixed commission to demarcate the northeast boundary of Afghanistan separating that country from the newly annexed Turkoman districts of Russia in Asia, from the Heri Rud to the Oxus or Amu Darja river. The chief commissioner representing the British Government was Sir West Ridgeway, and on the Russian side M. Lessar. They began their labors in the autumn of 1885, and continued them until obliged to go into winter quarters. On March 12 they continued the survey; but the demarcation was soon stopped, to await the decision of their re-

spective Governments on claims advanced by the Russian commissioner which the British commissioner refused to allow. They then decided to proceed with the work, reserving doubtful points for the authorities at home to decide later. At Khoja Saleh there was a dispute about 50 square miles of territory, which was referred to the home authorities. The Russians claimed that the post of that name mentioned in the agreement of 1873 was situated twelve miles from the frontier line that is now locally recognized. The boundary commissioners were recalled before a decision was reached. Of 9,000 square miles that were in dispute when the commissioners began their work, 7,000 were conceded to Russia and 2,000 confirmed to the Ameer, but the latter comprised most of the fertile and valuable territory.

The boundary-line between Hauz-i-Khan and Maruchak, as defined in the protocol signed by the British and Russian delimitation commissioners, runs in almost a straight line from Hauz-i-Khan to a point four versts north of Robat-i-Kushan, thence in the direction of Maruchak in a straight line to a point a little southward of the mouth of the Great Pendjaryk, and then along the left bank of the Murghab to within three versts of Maruchak, where it crosses over to the other bank. Sir West Ridgeway, the British commissioner, after visiting Ishak Khan and conferring with the Ameer at Cabul, returned to India in October.

The Russian Advance.—The events of 1885, especially the collision at Penjdeh strengthened the position of the British in Afghanistan by turning the hatred and dread with which the English were formerly regarded against the Russians and leading the Afghans cordially to accept the British alliance. The fortification and arming of Herat by the English was gratefully accepted by the people of that city, as well as by the other Afghans. The Government and people of Afghanistan willingly agreed to the building of the railroad to the neighborhood of Candahar. The line has been laid to Pishin, the Chodja Pass fortified, and the Helmund line of defense effectually established by the Indian Government.

Vakhan.—While the boundary commissioners were engaged in marking the line on the northwest from the Persian frontier to the Oxus, both Russian and British emissaries were busy in raising new disputes in the east, where the actual limits of Afghan and Bokharan rule do not follow the river frontier agreed on between Earl Granville and Prince Gortchakoff in 1872. Col. Lockhart was sent on a mission of observation into that region, where Russian agents were inviting the inhabitants to place themselves under the direct protection of the Czar, as a security against the conquests prosecuted by the Ameer of Afghanistan at the prompting of the English. The Indian Government prepared to support the Ameer in an expedition into Badakshan. The rulers in the khanate of Vakhan, in the extreme northeast of Afghan-

istan, which has been considered as a dependency of the adjoining khanate of Badakshan, were induced to send a deputation to the Governor-General of Turkistan offering their allegiance to Russia on certain conditions. With the possession of this district the Russians would have the Chinese province of Kashgaria at their mercy, and would threaten Cabul. They would be near neighbors of India, and could spread their influence among the wild, unconquered tribes of the Himalayas, who are accessible from the Pamir and from Kashgaria. The aim of the Russian military policy was to turn Herat, after compelling the English to guard the approaches in that quarter, and menace India from another direction. The annexation of southern Bokhara was contemplated in connection with the building of the railroad, and it was rumored that the Emir was to be compensated by handing over to him the dominions of the Khan of Khiva.

The Afghans conquered the Tadjik khanate of Badakshan in 1870. Abdurrahman has maintained several thousand troops at Fyzabad, the capital, and smaller garrisons at other places, who treat the people with cruelty, and have forced the inhabitants of many towns to emigrate into Bokhara. This province is therefore in a chronic state of rebellion. Shignan and Vakhan, small khanates in the Pamir, have been invaded by the Afghans under the present Ameer. Shignan, with 28,000 inhabitants, lies within the sphere of Russian influence as defined by the arrangement of 1873, since it lies north of the Murghab river, though the English have discovered a second Murghab river that would bring the khanate within the bounds of Afghanistan. That Vakhan, which has only about 2,000 inhabitants, also falls to Russia under the agreement of 1873, the Russians are prepared to contend. With the possession of the Pamir they gain access to the passes of Chitral. The Russians have won in principle the ethnographical frontier that they sought to establish in the west. When they seat themselves in Bokhara and, without reference to the river boundary agreed upon, endeavor to apply the same rule on the northeastern frontier of Afghanistan, there will be a numerous population of industrious Uzbeks and Tadjiks, restless under the tyranny and extortions of the Afghans, eager to hand over to them a country of valuable resources, and with it the strategic command of Cabul and the Afghan valleys.

Revolt against the Ameer.—In October the Andarans and Tookhis, the two sections of the great Ghilzai tribe, with a portion of the Hazara tribe, joined by the robber-chief Sadu, under the command of the sons of the Woollah Muchki Alum, revolted against the Ameer's rule, and near Mukkur attacked and dispersed an Afghan regiment that was escorting treasure to Cabul. The latter, with a number of prisoners, fell into the hands of the rebels. The rising was connected with discontent at the excessive taxation levied by the Afghan Government. The Afghan au-

thorities announced later that the rising had been completely suppressed.

The Zhab Valley Marauders.—Sidar Shah Jehan, of Zhab, with his principal chiefs and maliks, arrived at Duki, on Jan. 17, 1886, to make his submission to Sir R. Sandeman, the governor-general's agent, thus fulfilling the terms of peace made with the Zhab tribes after the expedition of 1884.

The Transcaspian Railway.—The narrow-gauge railroad from Michailovsk to Merv is 1,335 versts in length, and has 63 stations. The first 510 versts, from Michailovsk to Artik, crosses a nearly waterless region extending to Kizil Arvat. From Artik to the Oxus is a distance of 470 versts, and from Tchichardjui on the Oxus to Samarcand 350 versts. The road runs for the most part through a sandy, uncultivated country, producing no fuel; but *astakhi*, or petroleum waste, for the engines, is furnished in sufficient quantities from the product of the Transcaspian oil-wells. The new harbor, opposite the island of Urzambada, southwest of Michailovsk, which is to be the depot of the railroad, was opened on May 22. Gen. Annenkov had returned from St. Petersburg, where on April 13 he obtained the sanction of the imperial ministry for the extension of the line through Bokhara to Samarcand.

Disturbances in Bokhara.—The compliance of Abdul Ahad, the new Emir of Bokhara toward Russia in regard to the railroad and other matters produced much discontent among his subjects, and a revolt was led by his brother, Abdul Mumin Khan, the Beg of Hissar, who was in correspondence with the eldest brother, the pretender, at Peshawer. The latter, Abdul Melik, called Kette Tore, or rightful heir to the throne, who is under British protection, threatens to drive his brother, the Emir, from the throne at the instance and with the assistance of the Indian Government. The Emir checked the movement in Hissar before it attained formidable dimensions, and transferred Abdul Mumin Khan to a similar post at Baison. Farther east a revolt of the Kiptchaks, who receive secret aid from China, disturbs the Russian province of Ferghana, formerly the khanate of Khokand.

ALABAMA. State Government.—The following were the State officers during the year: Governor, Edward A. O'Neal, Democrat; Secretary of State, C. C. Langdon; Treasurer, Frederick H. Smith; Auditor, Malcolm C. Burke; Attorney-General, Thomas N. McClellan; Superintendent of Public Instruction, Solomon Palmer; Railroad Commissioners, Henry R. Shorter, Levi W. Lawler, and W. C. Tunstall. Judiciary, Supreme Court: Chief-Justice, George W. Stone; Associate Justices, David Clopton and H. M. Somerville.

Condition of the State.—The Governor, in his message to the Legislature on Nov. 10, says: "During the past two years the State has been peculiarly blest. No great disaster has befallen its people. The public peace has every-

where been preserved. The laws have been faithfully executed. Life has been secure and property has been protected. The cost of government has been lessened, and taxes collected for the public use have been economically expended. Favoring seasons have given satisfactory returns to the labors of the husbandman. Agricultural prosperity has stimulated and rewarded commercial and manufacturing enterprise. Its mineral resources have challenged the attention of the world, and eager capital from remote countries hastens to their development."

Finances.—The Legislature of 1882-'83 reduced the tax-rate and increased the appropriations. This followed the defalcation of the State Treasurer for about \$250,000. The immediate result was a better collection of taxes and more prompt returns to the treasury.

The treasury balance, Sept. 30, 1884, was \$224,832. The receipts at the treasury from all sources during the year ending Sept. 30, 1885, were \$962,462.83, and the disbursements from it were \$916,924.52, leaving a balance of \$270,370.31, of which \$239,500.10 belonged to the general fund and was available for ordinary purposes. The treasury receipts from all sources for the year ending Sept. 30, 1886, were \$888,724.33, and the disbursements for all purposes \$818,366, leaving a balance of \$340,727.94, of which \$71,273.85 were special funds. In addition, moneys are paid direct by the county collectors to the County Superintendent of Education.

In 1885 and 1886 the total amount of taxes collected from the people (exclusive of county, city, and special taxes), in one form or another, on property, for licenses in fees and on polls, was \$2,592,673.91 (not including \$187,588.37 received at the treasury from other sources than taxes), of which \$934,075.12 was received and paid out in the counties, and did not come into the treasury.

Since 1875 the taxable value of property in the State has been as follows: 1876, \$135,535.792; 1877, \$130,709,128.57; 1878, \$126,773,262.85; 1879, \$123,757,072.85; 1880, \$139,077,328.22; 1881, \$152,920,115.14; 1882, \$157,520,551.25; 1883, \$158,578,157; 1884, \$167,124,594.49; and 1885, \$172,528,933.82. The bonded indebtedness of the State is now \$9,193,900. Of this \$7,700,000 bears interest at 4 per cent., \$539,000 at 5 per cent., and \$954,000 at 6 per cent.

Debt Settlement.—The settlement of the old bonded debt of the State under the act of Feb. 26, 1876, has not been entirely closed. About \$250,000 of old bonds, convertible into new class A bonds, and about \$200,000 of the indorsed Alabama and Chattanooga Railroad bonds are still outstanding. Under the act of Feb. 26, 1876, the State released to the holders of bonds issued under the act of Feb. 11, 1870, and loaned to the Alabama and Chattanooga Railroad Company, in satisfaction of all liability thereon, all its right to the lands and other

property mortgaged to it by the railroad company to secure the bond loan, and this property was conveyed to trustees for the benefit of the bondholders. This trust was to continue until May 1, 1886. On that day, 1,883 of the 2,000 bonds had been surrendered to the State.

Public Schools.—The report of the State Superintendent for the year ending Sept. 30, 1885, dated Jan. 11, 1886, shows a total school revenue for that year of \$511,540.05, of which \$21,500 was paid to the normal schools, and the balance apportioned among the colored schools. There were taught during the year, 3,647 schools for white children, and 1,744 schools for colored children. Of white teachers there were 3,565, and of colored teachers 1,827. The total number of teachers employed was 5,392, an increase of 210 over the preceding year. The average monthly pay of teachers in the white schools was \$23.76, and of teachers in the colored schools \$22.78.

On the 23d of April, 1884, Congress granted to the State of Alabama 46,080 acres of land for the benefit of the university, to be applied, so far as necessary, to the erection of buildings and to the restoration of the library and scientific apparatus destroyed by fire.

The Agricultural and Mechanical College is in a prosperous condition. Its faculty consists of ten professors and five assistants. During the present session it has 157 students.

Convicts.—Relative to the treatment of convicts, the Governor says: "Prior to 1882 little was known of the treatment and condition of convicts to the penitentiary. It was known that from the time of its organization the penitentiary had been a source of trouble, solicitude, and expense. Whether the convicts had been worked by the State under a warden, or controlled by others under lessees, the financial results were always the same, though there had been some improvements in this respect of later years, and since 1878 they had been self-sustaining. Of the convicts there was a uniform report of kind, considerate, and humane treatment, and uniform tables of an appalling mortality, and nothing more. It was not until four years ago that an official report informed the Governor and public that the convict-camps were unfit for use. The Legislature promptly passed the act of Feb. 22, 1883, 'to regulate the hiring and treatment of State and county convicts,' under which much was accomplished. The act of Feb. 17, 1885, which made some radical changes in the convict system and in the manner of the State's superintendence of convict-labor, was a well-considered effort in the direction of the humane ends of adequate punishment for crime. This provided for effective inspection, and armed the authorities with power to enforce all needful rules and regulations for the protection of the State and of the convicts." A comparison of the death-rate of a few years last past with that of a few previous years will make plain the progress toward a just and proper treat-

ment of convicts. In 1867, of each hundred convicts, 18 died; in 1868, 18 $\frac{1}{2}$; in 1869, 17; in 1870, 41, and in 1871, 14. In 1882, of each hundred convicts, 6 died; in 1883, 7; in 1884, 5; in 1885, 6; and in 1886, 2 $\frac{1}{2}$. In the biennial period ending Sept. 30 last, there were sent to hard labor for the counties 3,088 convicts, of whom during that time 2,017 were discharged, and 100 died, leaving 904 undergoing sentence.

The Deaf and Dumb and the Blind.—During the two years ending Sept. 30 last, 118 pupils were enrolled in the Institution for the Deaf and Dumb and Blind at Talladega, of whom 76 were deaf and dumb and 42 were blind, 68 being males and 50 females. At the close of the last year, there were in attendance 51 deaf and dumb and 32 blind pupils, of whom 50 were males and 33 were females. The last Legislature appropriated \$2,000 for repairing the buildings of the institution. The annual appropriation for the institution is \$18,000, which is used for salaries and for current expenses.

Insane.—On Sept. 30, 1884, there were in the Alabama Insane Hospital 630 patients, of whom 309 were men and 321 were women. To the 30th of September, 1886, there had been received 447 additional patients, and 344 had been discharged, leaving, at the latter date, 733 under treatment. In 1885 the daily average number of patients was 660, and in 1886 it was 722. Of the 344 patients discharged 189 were restored, 37 were sufficiently improved to be kept at home, and 32 were unimproved. Of those in the hospital Sept. 30 last, 350 were men and 383 were women. There were 38 paying patients and 695 indigent. Ninety of the patients were negroes.

Local Legislation.—Relative to local legislation, the Governor expresses the following views: "The evils of local legislation have long been recognized and felt; and the Constitutional Convention of 1875 put in the fundamental law of the State a provision intended to mitigate them. In commanding to the acceptance of the people the Constitution of that year, a committee appointed by the convention, and speaking for it, said, 'All power to enact local or special laws for the benefit of individuals or corporations is prohibited, and the people are thereby protected against the heavy expense of legislation in which they have interest.' This prohibition is so constructed that it does not prohibit, and the evils it was intended to diminish are increasing. In the pamphlet acts of the last session, there are 194 pages of general laws and 637 pages of local laws, many of the latter clearly in conflict with the intent of the Constitution."

Political.—The Democratic State Convention met in Montgomery on the 9th of June, and nominated the following ticket: for Governor, Thomas Seay; Secretary of State, Charles C. Langdon; Treasurer, Fred H. Smith; Attorney-General, Thomas N. McClellan; Auditor, Malcolm O. Burke; Superintendent of Educa-

ALBANY.

tion, Solomon Palmer; Chief-Judge of Supreme Court, George W. Stone; Associate Justices, H. M. Somerville and David Clopton. On the 2d of August this ticket was elected. With one county missing, the vote for Superintendent of Education was as follows: Democratic, 144,857; Republican, 28,688; Prohibition, 636. For Chief-Judge, the Democratic vote was 146,293; Republican, 36,867. The constitutional amendment relative to roads was voted down. A majority of the votes cast on the Birmingham amendment were in the affirmative, but, the vote being small, the ratification of the amendment is doubtful. The Legislature is almost wholly Democratic. On the 2d of November, eight Democratic Congressmen were elected. The Legislature met on the 9th of November, and was in session at the close of the year.

Confederate Monument.—On April 29, the foundation of a monument to the Confederate soldiers of Alabama who died in arms for the Confederate cause was laid on the grounds of the State Capitol in Montgomery by Jefferson Davis. Of this the Governor says: "It is designed to perpetuate the names and memories of all Alabamians who died in defense of the cause they believed to be just; and every county, city, town, and village in our State is interested in the early erection of this monument to commemorate the patriotism of those whose courage and devotion to duty were illustrated by their death upon the battle-field. . . . They did all that men could do, and the proudest epitaph that can be written upon their monument is, 'They died in defense of their country.'"

ALASKA. See UNITED STATES.

ALBANY. Bi-centennial Celebration of 1886.—The city of Albany celebrated the two-hundredth anniversary of the granting of its charter on July 22, 1886. The claim had been made by many of its citizens that no American city, save St. Augustine, Florida, had a charter of so great an age; but a careful review of the old Dutch records sustained the counter-claim that New York city had a charter older than that of Albany by several months. The Albanians, therefore, gracefully yielded priority, and celebrated their anniversary in a manner that appealed more particularly to their local pride. A brief glance at the salient points in the career of the city will make clearer an outline of the celebration itself. The first settlement of Albany was at Fort Nassau, on what is now called "Castle Island," just below the city. The date usually conceded is 1615, or six years after Hendrick Hudson ascended the river in the "Half-Moon." The high water drove the fort to the mainland, and another was substituted for it in 1623. The new structure, known as Fort Orange, stood near what is now Steamboat Square. There seems to be no doubt that the land surrounding the outlying village, called Beverwyck, was included in the original purchase of the Van Rensselaer part-

ners from the Indians. The matter was in doubt for many years, and the uncertainty led to a dispute of the Patroon's claim by the people of Beverwyck. Their cause was assumed by Peter Stuyvesant, Governor of the colony, who came from New York to fire cannon-balls all about the fort in defiance of the Patroon and his agent, Van Slechtenhorst. The Dutch soon (1664) lost the colony to the English, and Beverwyck was thenceforth called Albany, after the Scotch title of the Duke of York, afterward James II. The Patroon had succeeded in establishing his right to Beverwyck in advance of the conquest. A compromise was effected by granting a city charter, leaving the exact time of settlement to a future date, and resulting finally in a settlement of the Patroon's claim for a certain amount of money. It was also thought best to ask and to grant a city charter, because the "Charter of Liberties" had been recently put forth by the new General Assembly of the province, and



THE STADT HUIS.

also because the people of Albany had erected at their own expense a meeting-house, a watch-house, and a town-house. Therefore, in the early months of 1686, Thomas Dongan, Lieutenant and Governor of the province of New York, sent greeting "to all persons to whom these presents shall come or in anywise concern," relative to the chartering of the city of Albany. The new document was received by three prominent citizens of Albany, who went to New York city on that errand. They were Major Peter Schuyler, Robert Livingston, and Dirck Wessels Ten Broeck. The following appears upon the records of the first meeting of the justices of the peace thereafter: "In nomine Domini Jesu Christi, amen. Att a meeting of ye Justices of ye Peace for ye County of Albany, ye 26th day of July, A. D., 1686, Pieter Schuyler, Gent., and Robt. Livingston, Gent., who were commissionated by

ye Towne of Albanie to goe to New Yorke and Procure ye Charter for this Citty, wh. was agreed upon between ye Magistrates and ye Right hon Col. Tho. Dongan, Govr. Genl., who accordingly have brought the same along with them, and was Published with all ye joy and Acclamations Imagineable, and ye said Two Gentn. Receivd ye Thanks of ye Magistrates and Burgesses for there Diligence and Care in obtaining ye same."

The charter was engrossed on July 9, 1686, and given to the city on July 22 following. Notwithstanding it has been handed down from city father to city father for two centuries, the writing is still plainly legible on all but one sheet, and in that it has suffered more from constant handling than from the ravages of time. The charter is written on one side of nine large sheets of parchment, knotted together with what was originally red or blue tape or cord. The sheets are twenty-four inches broad by twenty-two inches in length, and retain their original stiffness, with the exception of the top sheet, which is the last one, as it contains the signature and seal of Thomas Dongan, the Governor. Dongan's name is particularly plain, and as written stretches one half of the length of the sheet down at the bottom. A knot of red and blue tape in the shape of a diamond separates the Christian name from the surname, and from the knot depends Gov. Dongan's great seal, which was originally contained in a thin silver box. The cover of the box is missing, but the other half remains. The seal looks as if it were made of cement, and it is attached to the cord by sealing-wax. The same design is stamped upon the face of the seal, but it is only faintly distinguishable. On one corner of the last sheet is this writing: "Recorded in the Secretary's Office, Province of New York, Book of Patents 440 to 470. J. S. Sprague, Secretary." The nine large sheets are yellow with age and dingy; but the engrossing shows that it was done by a skilled penman.

According to the charter, the mayor had the authority to give and grant licenses annually, under the seal of the city, "to all tavern-keepers, innkeepers, victualers, and all public sellers of wine, strong water, cider, beer, or any other sort of liquor." The mayor was also clerk of the market and coroner. As clerk, he, "and no other person or persons," had "the assize or assay of bread, wine, beer, wood, and other things to the office of clerk belonging or concerning." The penalty for refusing to hold and execute the office of mayor was a fine of not less than £20; for refusing to perform the duties of his office, an alderman was fined £10, current money; and the chamberlain, assistant, or sheriff, £5 of like money. Other forfeitures were provided for the minor offices. The right was given the citizens of Albany to "all waste and unoccupied lands lying within the limits of said city," together with the royalties of fishing, fowling, hawking,

mines, and minerals, and all other privileges belonging to and pertaining to said city, gold and silver mines excepted, likewise including the honorable purchase from the Indians of all lands that might be required for the city's welfare. All laws enacted by the Common Council were limited to one year only, unless confirmed by the Governor for a longer period, exception alone being made of the laws regulating Indian trade. The penalty for illegal trading with the Indians was the imposition of a fine not exceeding £20. The City Court was ordered to convene on the Tuesday of each alternate week throughout the year. All grants given during the previous twenty years were secured under the charter, and also all privileges heretofore enjoyed, provided they were not inconsistent with or repugnant to the laws of the kingdom of England. The Common Council should take special charge of all lands granted to the city by citizens for charitable or religious purposes, so that no construction should be made thereon other than that which might tend most to advance religion, justice, and the public good. Power was granted the mayor to issue papers of naturalization to those qualified to receive and desiring them. This was of the utmost importance, as no persons other than free citizens could use any art or trade mystery, or manual occupation, within the city limits, saving at the time of fairs and during the continuance of such fairs only.

The changes in the original charter have not been frequent; but the rights of the people have been steadily maintained. The name of the corporation is no longer "The Mayor, Aldermen, and Commonalty," but "The City of Albany." The latest charter was granted in 1883. Under its provisions the nominations of the mayor must be confirmed or rejected at the meeting of the Common Council to which they are sent or at the next regular meeting, or they will stand confirmed. The mayor, on the other hand, must send in nominations as soon as terms expire or vacancies occur. Hence dead-locks are impossible, and no political favorites of either the mayor or the Common Council can be kept in place by trickery. The Council is not allowed to audit its own bills. The different heads of departments are made more responsible for their acts, and the people are kept informed of what is going on by monthly statements. Best of all, the mayor holds his office for two years, and he is ineligible until another term shall have intervened. Perhaps in no other municipality in the country have the lessons of two hundred years been observed to so great advantage as in the city of Albany.

The Hudson river was the official eastern boundary of the new city of 1686. The southern boundary extended from the northern end of Martin Gerrison's Island for fifteen English miles in a northwesterly direction, to a certain kill or creek called Sandkill. The northern line extended from a post erected by Gov

Stuyvesant near the Hudson river, fifteen miles westward. The western boundary completed the parallelogram by connecting the western extremities of the north and south lines. The population in 1689 was 2,016; but this included the whole area of Albany county, which extended from Poughkeepsie to Canada, and from Connecticut river to the heart of the Mohawk country.

The first mayor, Peter Schuyler, had successive administrations that extended from 1686 to 1694. In 1709 Peter Schuyler, then a prominent man in the province of New York also, was sent to England with a deputation of four Indian kings, and was received at the English court by Queen Anne. The presence of four kings was so extraordinary an event in London as to attract attention, and the "Tatler" and the "Spectator," of Steele and Addison, gave entertaining accounts of their presentation at court. At the Queen's request, engravings of the four Indian kings, in national costume, in *aqua tinta*, were taken, copies of which were purchased for the State Library a few years ago. At the same time, a full-length portrait of Peter Schuyler was taken, according to report, by the great artist Van Dyck, and presented to Schuyler by the Queen. The artist, however, is believed to have been Sir Godfrey Kneller. The portrait is of full length and of large dimensions. It represents him in the costume of the day, and is executed in the best style of the times. Whether it be a genuine Van Dyck or not, it has genuine artistic value. On his return, Schuyler brought the portrait with him, and ever since it has been in the possession of the Schuyler family.

Albany has often been called the birthplace of the American Union. Here, in the old Stadt-Huis, was held the great convention of 1784, by the advice and with the sympathy of the English Government. Seven of the colonies sent the twenty-five delegates that were present, Benjamin Franklin, Sir William Johnson, John Penn, and Stephen Hopkins being among the number. New Jersey sympathized, but did not send delegates; while Virginia and the Carolinas wished to be counted as present, although they had no delegates. The Indians, and especially the Mohawks, under their sachem Hendrick, were loaded with presents, and swore so hard to serve the King that the Americans, twenty years later, had reason to regret that part of the performance. After several plans of union had been debated and rejected, Franklin proposed a union of the

colonies of Massachusetts, New Hampshire, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania, Maryland, Virginia, North Carolina, and South Carolina. The plan was left for the consideration of the several colonies, and the American Union was the result a few years later.

During the Revolutionary War the Continental army made its headquarters in Albany. Schuyler, Clinton, Montgomery, and Lafayette had their personal headquarters in the city. The residence of Gen. Schuyler, just outside the stockade, was the scene of an attempted capture by British and Indians in 1781; but the general and his family escaped. In this residence a daughter of Gen. Schuyler married Alexander Hamilton in 1780, and a later owner, known as the widow McIntosh, here married ex-President Fillmore in 1858.

After New York became a State of the American Union, the Legislature was migratory for many years, Albany, Poughkeepsie, Kingston, and New York having about an equal division of the honors. Albany was made the permanent capital in 1797, and the old State-house in Broadway was occupied for several years. Then the old Capitol was occupied for seventy years, and finally the new Capitol in 1879. When Albany became the political capital, the city and county still held fast to the Federalists.

To group the foregoing, and many other interesting incidents of history, and to celebrate them in a worthy manner, was the work of the Citizens' Bi-Centennial Committee of Twenty-five. The celebration opened on Sunday, July 18, and closed on Thursday, July 22. On Sunday representative churches were selected, and in them were held appropriate historical services. Early on Monday morning the old north gate of the city, at the intersection of Steuben Street and Broadway, and the old south gate, at the intersection of Hudson Avenue and Broadway, were opened with quaint ceremonies by the mayor and city officers, a band of Iroquois from Caughnawaga chanting one of their songs of welcome. Then followed, through the day and evening, musical and literary exercises by the children of the public schools, canoe races along the river, the uncovering of historical tablets, a parade of manufacturers, builders, and trades organizations, a grand concert by school-children, and a band concert, with fireworks in Washington Park. A valuable feature of the day, and one of permanent interest to Albany, was the uncovering of the historical tablets of bronze. Some of them are worth quoting: "On this ground the Constitution of the United States was ratified in 1788"; "Here Gen. Washington was presented with the freedom of the city in 1782-'83"; "Van Rensselaer manor-house, residence of the Patroons, and site of the first manor-house"; "Upon this site stood the house occupied by, and wherein died, Anneke Jans Bogardus, 1663, the former owner



PETER SCHUYLER.

of Trinity Church property, N. Y."; "The Schuyler mansion, erected by Gen. Bradstreet in 1762. Washington, Franklin, Gates, Rochambeau, Lafayette, and most of the great



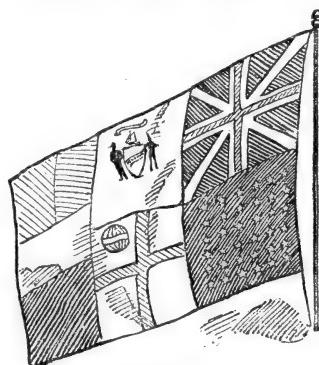
OLD DUTCH CHURCH.

men of that time were entertained here—Gens. Burgoyne and Reidesel as guests, though prisoners of war, 1777. Alexander Hamilton and Elizabeth Schuyler married here in 1780"; "The oldest building in Albany, built 1667, birthplace of Gen. Philip Schuyler," etc. Other tablets mark the old forts and the gates in the stockades, and still others (there being about forty in all) locate the first churches and school-houses, and show the changes in the names of the streets.

Tuesday was devoted to a parade of all nations, trial-heats of the annual regatta of the National Association of Amateur Oarsmen, Scottish games, musical and literary exercises by colored citizens, and an illuminated parade of Odd-Fellows, Knights of Pythias, and other fraternal organizations. On Wednesday morning the civic parade filled the streets. The final races of the oarsmen were completed in the afternoon. The evening witnessed a grand historical pageant that had been prepared with much care, after the manner of Mardi-Gras festivities. There were sixteen "floats," or emblems, each being drawn in procession through the streets, and lighted by colored fires. The subjects were these: The armorial bearings of the city; the Spirit of Discovery; the Northmen; the landing of Columbus; Fort Orange in 1624; Rensselaerwyck in 1630; a legend of the Catskills; Charter of the Duke of York, 1664; Dongan Charter, 1686; Summer Evening in Old Albany; the Schenectady Massacre; Surrender of Burgoyne; a Revolutionary heroine; the Last of the Patroons; the

Erie Canal; Prosperity and Progress. Thursday was known as the bi-centennial day, on which the military and Grand Army parade occurred, and the historical exercises took place. Gov. Hill delivered the oration, and William H. McElroy the poem. The ex-members of the Legislature had a reunion in the afternoon. In the evening the public festivities closed with a municipal reception at the Capitol to President Cleveland, Gov. Hill, and many other distinguished visitors, including representatives from the cities of Holland, whence the first settlers in Albany came. This was followed by a more private reception at the Fort Orange Club-house.

A very interesting feature of the celebration was the bi-centennial flag, which grouped, as nearly as possible, the nine flags that have floated over Albany from its earliest settlement to the present time. It consists of six parts. Beginning at the left, the first of the three large divisions is subdivided by a vertical line. A middle, broad stripe of white and a lower stripe of blue extend through both subdivisions. The upper left-hand corner is orange, while the rest of the stripe is red, thus reproducing the yellow, white, and blue of the Dutch India Company and of the Dutch Government. These flags floated over Forts Nassau and Orange until the English occupation in 1664. The red, white, and blue bands represent the present colors of the Dutch Kingdom, which floated over the fort



BI-CENTENNIAL FLAG.

during the few months of Dutch restoration in 1773-'74. The upper of the two central squares shows the coat of arms of the city in black, against a white ground. The lower central square is an English colonial flag, with a red cross upon a white ground, and a black globe in the upper left-hand quarter. The upper right-hand corner is the Union Jack, and the lower right-hand corner is the Jack of the Stars and Stripes.

Another feature of permanent value, aside from the bronze tablets, was the loan exhibition, which was open from July 5 till July 24. This was by far the most interesting and instructive affair of the kind that had ever been attempted outside of the larger cities; and even there the success, both as to finances and the merits of the exhibition itself, has rarely exceeded that of the Albany exhibition. It is a matter of congratulation, both for Albanians and for all others who seek the preservation of what is worthy in history, that the plan to make the loan exhibition a permanent thing is likely to be carried out.

ANARCHISTS. The Anarchist riot in Chicago of Tuesday, May 4, 1886, may be said to have begun in the eight-hour movement on the previous Saturday, or, more properly, in the attack on Monday, May 3, upon the McCormick reaper-works. The labor agitation throughout the country in the spring was more violent in Chicago than elsewhere. On Saturday, May 1, 40,000 laborers struck work and demanded a reduction of time from ten to eight hours. Chicago on that day presented a peculiar appearance. In the manufacturing districts the six and seven o'clock whistles were not heard. The usual hurrying crowds of workmen were not seen, and the streets did not contain half the number of trucks commonly in use. During the morning, however, several processions composed of the strikers were formed in the streets. Peaceable furniture-workers and mill-hands paraded, displaying American and German flags and banners, giving praise to the firms that had conceded the eight-hour day. A procession of 10,000 lumbermen, in front of which a man carried a red flag, visited several places and held meetings at which highly incendiary speeches were made. The discontented freight-handlers, to the number of nearly 1,000, marched around the depots and persuaded their fellow-workmen to join them. The freight-handlers of the Chicago, Burlington, and Quincy, and the Chicago and Alton Railroads, to the number of 300, had a brief meeting and marched to the Wabash freight-houses, where they persuaded eighty-five of the Wabash men to join them. The procession swelled and, with great cheers but no disorder, moved from station to station, everywhere urging men to join, who seemed unable to resist. The result was that every railroad in the city was crippled. All the freight-houses were closed and barred as for a prolonged state of siege, and all the industries of the city were paralyzed, for nothing could be delivered. These proceedings had here and there a threatening appearance. The freight-handlers who went to work were protected by guards with drawn revolvers. One of the processions was headed by a stout German, who carried a big wooden sword, which he had evidently fashioned with his own hands. Several of them marched like soldiers, their correct movements being cheered by the crowds

on the sidewalk. These last had no doubt profited by instructions received at meetings such as were afterward described at the trial of the Anarchists. It was observed by the detectives among the crowds of Germans, Bohemians, and Poles, that their talk was highly incendiary; but there was nothing to indicate such bloody results as followed. Many of the workmen appeared ready to accept reasonable terms from their employers, and did not wish to insist upon getting ten hours' pay for eight hours' work. But the demands of other laborers, particularly the lumbermen, were extreme. On Monday a great crowd of strikers, mostly lumbermen, inflamed by incendiary speeches, gathered about the McCormick works. Their quarrel with the workmen there was, that they were supposed not to have insisted upon the time-reduction. About half of McCormick's workmen were dissuaded or intimidated by them from going to work; but the other half, about 700, went to work as usual. During the day the company adopted the eight-hour time, and gave the men a half-holiday. The McCormick workmen, on coming out from their building, were attacked by the crowd with stones, and the men ran away or retreated into the building, the strikers meanwhile breaking a great many of the McCormick windows. The company's guard of a dozen men fired their revolvers into the air, hoping to frighten the strikers, who laughed at these demonstrations. The crowd had begun battering down the doors with crowbars, when a patrol wagon filled with policemen, dashed into the midst of the strikers, who threw stones and bricks at the officers. The officers alighted and drew their revolvers; but the mob kept on throwing missiles, the police dodging them as best they could. At length the crowd, great numbers of whom appeared to be armed, drew their revolvers and fired on the police, and the police returned the fire. The strikers being bad marksmen, none of the police were hurt; but about a dozen of the mob were wounded. On the arrival of re-enforcements, the police dispersed the crowd.

On that evening and the next day a handbill, printed in German and English, called upon the workingmen to meet at the corner of Des Plaines and Randolph Streets, on Tuesday evening, the 4th. "Good speakers," it was promised, "will be present to denounce the latest atrocious act of the police, the shooting of our fellow-workmen yesterday afternoon." At Des Plaines Street, Randolph Street, which runs east and west, widens out into a plaza, called the Old Haymarket, about 2,900 feet long by 150 feet wide. The crowd gathered just off the northeastern corner of this plaza in Randolph Street, 100 feet north of Des Plaines Street. About 1,400 men, including many who had been most active in the riot of the previous day, responded to the invitation. Half of these were driven away by a rain-storm, while those who remained were ad-

dressed from a wagon by August Spies, editor of the "Arbeiter-Zeitung," and by the Anarchist, A. B. Parsons. These speeches were rather mild; but Fielden, an Englishman, mounted the wagon and made an extremely violent speech of twenty minutes' duration. Meanwhile 200 police, under Captains Bonfield and Ward, were in readiness at the station in Des Plaines Street, less than 300 feet south of the wagon. When the tenor of Fielden's speech was known at the station, it was decided by the two captains that, in order to avoid a serious riot, it would be best to disperse the crowd. Accordingly 170 men drawn up in line were marched up Des Plaines Street, and when the police were within a few steps of the wagon, Captain Ward ordered the crowd to disperse. Fielden got down from the wagon, saying, "We are peaceable." At this moment a bomb with a lighted fuse attached was thrown from a crowd of men standing in an alley directly opposite the wagon. It struck the ground among the police, exploded, and worked terrible destruction among them. Numbers of them were wounded, officer Deegan dying almost immediately. The crowd then opened a destructive fire upon the police, sixty of whom were wounded by the bomb and the shooting, of whom seven died. The officers then charged the mob, firing their revolvers among them and killing and wounding a large number.

The trial of the persons charged with conspiring to throw the bomb began on the 15th of July, twenty-one days having been consumed in getting a jury. Spies, Parsons, Fischer, Fielden, Engel, Schwab, Lingg, and Neebe were the persons arraigned. Early in the trial Judge Gary gave a decision that greatly facilitated the conviction of the prisoners. His decision was this, that it is not necessary that the members of a conspiracy should have agreed to commit a murder at any particular time to constitute them accessories before the fact; that if murder has been agreed upon, and the time or manner of the crime has not been settled, the conspirators are nevertheless, when the killing has been done, guilty of murder. The evidence against the prisoners produced at the trial was mostly supplied by Anarchist informers, by detectives, the police, and the reporters. One of the informers, Waller, a Swiss, had been a member of the Lehr und Wehr Verein. This organization, as its name indicates, is a society for exercise and instruction in arms. It was incorporated under the laws of the State in 1875 by thirty German and Bohemian Socialists, and now includes 300 or 400 members, most of whom have seen service in foreign armies. They have been practicing military exercises to prepare themselves for conflicts with the authorities. Waller testified that he presided at a meeting of the society at Grief's saloon, the usual place of meeting, on Monday night, the 3d. He had seen in the "Arbeiter-Zeitung" the letter "T," and "Come on Mon-

day," which was the signal that there was to be a meeting. Fischer and Engel were present at this meeting. Circulars headed "Revenge!" were issued. The shooting of men at McCormick's was discussed. Engel introduced a resolution regarding what should be done in case there should be a conflict between the strikers and the police. In this case it was resolved that there should be meetings to aid the strikers. The word "Ruhe" (rest) was to be the signal for such meetings. The manner of fighting was also talked over. Engel suggested that a bomb should be thrown into the police-stations; and it was agreed that the mob should use bombs, fire-arms, or any other means of destruction, if they were attacked by the police. The society was to be represented by a committee at the Haymarket meeting. The question upon these measures was put to the meeting by Engel. Waller said that he had himself attended the Haymarket meeting, armed with a dynamite bomb.

Early in 1885 several of the largest property-owners in Chicago had employed Pinkerton's agency to make an investigation as to the real purposes of the Anarchists. One of Pinkerton's men, A. C. Jansen, testified that he was a member of the American branch of the International Workingmen's Association, and belonged to the armed section of that force. He had joined the organization with a view of finding out its objects. He attended all the meetings from February, 1885, till January, 1886, and was present at two meetings of the armed section. At one of these, Spies advised the shooting of a police-officer who had been accused of a serious charge, but had been acquitted on the testimony of his brother officers. Fielden referred to the dedication of the new Board of Trade, with this suggestion: "What a splendid opportunity there would be for some bold fellow, next Tuesday evening, to make the capitalists tremble by blowing up the building and all there is in it!" At one of the meetings, a man armed with a long sword, dressed in a blue blouse and wearing a slouched hat, requested all present to fall in line. The detective and two others stepped forward. On the drill-master's demanding that he should be vouchered for, the detective was at a loss what to do; but, to his great relief, Parsons volunteered to be his sponsor. The drill-master invited those present to inspect two tin boxes containing some improved dynamite bombs. At one of the meetings Parsons was elected lieutenant and proposed an attack on the First Regiment armory. In case of a conflict with the authorities, the International Rifles were to act with the Lehr und Wehr Verein. It will be seen that this evidence convicted Spies, Parsons, Fielden, and Engel of conspiracy. The same witnesses, and others, gave more evidence of a similar character.

It was further proved that dynamite bombs were in the possession of several of the accused. Dynamite was found in Spies's desk at the

"Arbeiter-Zeitung" office, and in the cellar of Engel's house. Evidence was given that the article in the "Arbeiter-Zeitung," headed "Blood," was in the handwriting of Schwab, who was an associate of Spies upon that paper. Concerning Fielden, an officer testified that at the approach of the police at the Haymarket, he exclaimed: "Here come the blood-hounds! You do your duty, and I'll do mine!" He said that, just as Capt. Ward was ordering the crowd to disperse, Fielden got down from the wagon and, saying, "We are peaceful," drew his revolver and fired point-blank at Bonfield, Ward, and the other officers. It was at this moment that the bomb exploded.

The evidence against Lingg was given by the informer, Seliger, a member of a Socialist group and recording secretary of the Carpenters' Union. The bombs were made in Seliger's house, under the supervision of Lingg. Seliger said he did not work at his trade on Tuesday. Lingg came on that day. He had previously told Lingg that he wished to have the bombs taken away from his house. In reply, Lingg told him to work diligently, and the bombs would be taken away that afternoon. Seliger went to work, drilling holes in the shells and filling them. Lingg went to a meeting, came back about one o'clock, and complained that Seliger had not worked hard enough; and, when Seliger replied that he had no pleasure in the work, Lingg said that they would have to work harder in the afternoon. He said the bombs were to be used that evening, and ought to be completed; they would make good "fodder" for the capitalists. In the evening Lingg and Seliger carried the trunk containing the bombs away from the house. They were met by Socialists, who opened the trunk and helped themselves to bombs. As they passed the Larrabee Street police-station, Lingg said it would be a beautiful thing to throw in a bomb. Then a patrol wagon approached, and Lingg said that would be a good opportunity. When Seliger said he thought not, Lingg became much excited and asked for a light from his cigar. Seliger lighted a match, taking time about it, so as to give the wagon time to pass. Lingg wanted to follow the wagon. Lingg showed the witness a copy of the "Arbeiter-Zeitung," containing the word "Ruhe," and said it was a signal for a meeting of armed Socialists on the west side. The two then went to a saloon where there were several other Socialists, one of whom said to Lingg, "You are the cause of it all." They were then told of the Haymarket affair. Lingg said nothing at the moment, but on the way home said that even now he was scolded and gibed at for the work he had done, and that his brothers in the cause did not appreciate him. They hid their bombs under the sidewalk.

Evidence was produced connecting Spies, Schwab, and Fischer with the throwing of the bomb. A witness testified that just before

the explosion he saw Spies hand a package to Schnaubelt, the missing Anarchist, who threw the bomb. He was walking in Randolph Street when the Haymarket meeting was assembling. He was near the wagon, when he saw Spies and Schwab pass into the alley. He heard the words "pistols" and "police" used by them, and heard one of them ask the other whether "one would be enough." They came out of the alley and went westward along Randolph Street, when they were presently joined by a third man, whom the witness recognized from a photograph as Schnaubelt. The three then turned and started toward the Haymarket, the witness following them closely. He saw Spies hand Schnaubelt something, which the latter put into his pocket. A moment later he heard Schwab say, "Now if they come, give it to them!" and Spies reply, "I don't think we can, for they won't give us a chance to-night." Another witness, Gilmer, testified that when Fielden was speaking, he was standing at the mouth of the alley near the wagon. He saw a man descend from the wagon and join a group of four or five persons standing in the alley. At that moment some one cried, "The police are coming!" Then the man who had left the wagon and joined the group in the alley, lighted a match and placed it against something held in the hand of one of the group, whereupon a fuse began to sizzle, and then immediately the bomb was thrown. The witness recognized a picture of Schnaubelt as that of the thrower of the bomb. He recognized Spies as the man that left the wagon and lighted the fuse, and Fischer as a member of the group.

Fischer was arrested at the "Arbeiter-Zeitung" office. He was armed with a revolver and a long knife. It was shown that he had written the words at the head of one of the Anarchist circulars, "Workingmen, arm yourselves and appear in full force!" Neebe distributed the "Revenge" circulars.

The defense endeavored to set up a new theory regarding the throwing of the bomb. It was, that the bomb did not come from the group in the alley near the wagon, but arose thirty feet south of the wagon, and was hurled through the air in a northwesterly direction, and therefore in a manner toward the speakers' wagon. Testimony was adduced to show that Spies and Schwab did not go into the alley previous to the opening of the meeting. Witnesses were examined to prove that it was the police who began the shooting after the explosion, and not the Anarchists; but these witnesses were usually shown, on cross-examination, to have been members of Anarchist or Socialist organizations. The defense also impeached the veracity of Gilmer, the witness who swore to seeing Spies light the fuse of the bomb. Several of the defendants were placed upon the stand to testify in their own behalf.

Judge Gary made an elaborate charge to the jury, in which he repeated the instruction to

which allusion has already been made. He said that if any one of the defendants attempted to overthrow the law by force, and threw the bomb, then the defendants who were in the conspiracy were guilty of murder. If there was a conspiracy, and the defendants were party to it, they were guilty of murder, although the date of the culmination of the conspiracy had not been fixed. The impracticability of the aims of the defendants was immaterial. He said that the jury might bring in a verdict of manslaughter in the case of any one or all of the prisoners.

The jury retired after the judge's charge, and, on the next morning, August 20, gave in their verdict, which was as follows: "We, the jury, find the defendants—August Spies, Michael Schwab, Samuel Fielden, Albert R. Parsons, Adolph Fischer, George Engel, and Louis Lingg—guilty of murder, in the manner and form charged in the indictment, and fix the penalty at death. We find the defendant Neebe guilty of murder in the manner and form charged in the indictment, and fix the penalty at imprisonment for fifteen years." The verdict was cheered by the crowd outside the court-house, and was received with great satisfaction by the people of Chicago.

Perhaps the defendants were not all of them the cruel wretches they appeared. They had been for a long time, in their meetings and newspapers, advocating the use of dynamite. Their newspapers referred to it as "this powerful agent of civilization"; and not only did these organs recommend its use in general terms, but they offered practical suggestions regarding the best methods of manufacturing it, as the following extract from one of them will show: "Dynamite is the stuff, and don't you forget it! Enough of it to fill your vest-pocket has power to do more for the wage-slaves of this country than a bushel-basket full of ballots. Fill a piece of gas-pipe with good stuff, plug up the ends, insert a fuse and cap, touch it off, and introduce it among a lot of rich loafers, and there will be a cheerful scattering of unemployed capitalists that will be felt for some time." They have been long talking in this way, but when the thing has at last been done, and real murders have been committed, they seem to be rather taken aback. Vanity has probably had quite as much to do with their actions as malice or a sense of oppression. It has been said by some one that the attraction of assassination to the poor man is that, when armed with this instrument, he may at least not be despised. When Engel's wife visited him in prison, and chided him for having placed himself in such a position, he wept and said: "I am cursed with eloquence. Louise Michel suffered for a cause. She is a woman. I am a man, and will stand it like a man." When the extract about dynamite, above quoted was read in court, the prisoners seemed to be greatly amused by the wit of it. Their theatrical and impudent behavior during

the trial no doubt bore against them. Certainly the feeling against them in Chicago was very strong. The sufferings of the brave policemen had evidently touched the popular heart. The prosecution at one time during the trial introduced in evidence a coat, showing many rents, which had been worn by a policeman whom the bomb had wounded in a number of places. The defense asserted that the purpose of introducing the coat was to affect the jury, to which the State's attorney replied that, if he had really wished to move the jury, he would have brought the officer and exhibited his wounds. The prosecution was ably conducted. The result of this trial seems to show that a campaign of dynamite, on the part of the discontented classes, can not be waged with much prospect of success.

ANGLICAN CHURCHES. Statistical Reports and Finances.—The "Official Year-Book of the Church of England" gives the following summary of voluntary offerings devoted, during the year 1884, to the building, restoration, and furnishing of churches, the endowment of benefices, the building of parsonage-houses, and the enlargement of burial-grounds. Grants received from the Ecclesiastical Commissioners and Queen Anne's bounty are excluded:

DIOCESE.	Amount.	DIOCESE.	Amount.
Canterbury.....	£58,755	Llandaff.....	£39,626
York.....	43,604	Manchester.....	105,107
London.....	168,749	Newcastle.....	64,039
Durham.....	12,630	Norwich.....	37,321
Winchester.....	40,655	Oxford.....	86,289
Bangor.....	18,200	Peterborough.....	43,183
Bath and Wells.....	24,861	Ripon.....	67,816
Carlisle.....	42,497	Rochester.....	100,194
Chester.....	59,209	St. Albans'.....	86,058
Chichester.....	50,275	St. Asaph'.....	19,173
Ely.....	20,024	St. David's.....	30,090
Exeter.....	39,932	Salisbury.....	16,271
Gloucester and Bris-		Sodor and Man.....	1,600
ton.....	81,085	Southwell.....	63,711
Hereford.....	6,754	Truro.....	20,181
Lichfield.....	30,063	Worcester.....	36,043
Lincoln.....	35,760		
Liverpool.....	36,674	Total.....	£1,455,839

DETAILS OF SUMMARY.

Church building and restoration.....	£1,163,544
Endowment of benefices.....	189,557
Parsonage-houses.....	95,827
Burial-grounds.....	7,381

Total..... £1,455,839

The "Official Year-Book" further gives the following summary of the voluntary contributions of the Church for the funds and purposes named for the twenty-five years, 1860 to 1884: For theological schools and education of candidates, £528,653; for church building and restoration, etc., £35,175,000; for home missions, £7,426,478; for foreign missions, including missionary colleges, etc., £10,100,000; for elementary education, £21,362,041; for circulation of literature, etc., £987,841; for church institutes, £71,660; for charitable work (distinctively Church of England institutions), £3,818,200; for clergy charities, general and diocesan, £2,103,364; total, £81,573,237. The summary is inclusive of and confined to societies and institutions organized and administered by the Church of England alone. From

it are omitted certain distinctive church societies, institutions, and charities concerning which the committee having the publication in charge could not obtain information; contributions devoted to parochial purposes, such as the maintenance of assistant clergy, church services, institutions of a local character, relief of the sick, etc.; funds devoted to the founding and maintenance of middle-class schools; contributions devoted to societies and institutions distinctly unsectarian in their aim and administration; and the incomes of the sisterhoods of the Church.

Ecclesiastical Commission.—The report of the Ecclesiastical Commissioners for England shows that since 1840, when the common fund was created, benefices to the number of 5,300 have been augmented and endowed to the amount of £739,000 per annum, in perpetuity, or in capital value to the amount of £22,170,000. Benefactions by private donors, conveyed to the commissioners, amount to £4,530,000, which represents an increase of endowment of £151,000 a year, and if to these sums be added £26,000 a year specially contributed by benefactors for mining districts, it will be seen that the total increase of benefices amounts to £916,000 per annum, an income which represents a capital sum of £27,480,000. The commissioners' funds having been seriously affected by the continuance of agricultural and commercial depression, they say that there is reason to believe that the income of the commission has for the present ceased to expand. For 1886 it would be possible to make an appropriation of £450,000 of capital, or an annual charge of £15,000; and this would be expended in meeting benefactions offered in favor of benefices to the capital amount of £80,000; in endowing to the amount of £2,400 a year churches to which districts have been assigned since 1881; and in meeting local claims on estates vested in the commissioners.

Benevolent Societies.—The home income of the Colonial and Continental Church Society was reported, at the anniversary in May, to have been £16,501, and the expenditure £17,335. The Church Pastoral Aid Society returned an income of £54,226, with 772 grants on its books. The number of parishes benefited was 640, in which was included a population of more than 5,000,000 souls. The Spanish and Portuguese Church Aid Society, whose annual meeting was held May 26, under the presidency of the Archbishop of Dublin, returned an expenditure for the year of £5,908, and a deficiency of £382. It employs thirteen ordained persons in the Reformed Episcopal Churches of Spain and Portugal. During the year a new mission hall had been opened at Seville, and new churches built at Villaescusa and Lisbon. In accordance with recommendations that had been made in the previous year, a missionary clergyman had been appointed for the supply of an itinerant evangelistic mission. The receipts of the South American

Missionary Society, as reported at the anniversary, April 30, had been £12,008, and the expenditures had been £13,814. The society sustains missions among the Indians of South America, chiefly in Patagonia and the region of Cape Horn, and cares for the religious wants of English residents in various parts of that continent. Its work is covered by the diocese of the Bishop of the Falkland Islands.

Society for the Propagation of the Gospel.—The annual meeting of the Society for the Propagation of the Gospel in Foreign Parts was held February 19. The gross income of the society for the year had been £117,971, of which amount £101,825 had been contributed to the general fund, and £16,146 to special funds, or for the benefit of particular dioceses and missions. The whole amount of contributions to the general fund was greater by nearly £9,000 than in any previous year of the society's existence. The number of ordained missionaries, including ten bishops, on the society's lists, was 575. Of these 166 were laboring in Asia, 142 in Africa, 15 in Australia and the Pacific, 195 in North America, 31 in the West Indies, and 26 in Europe. There were also in the various missions of the society about 1,700 catechists and lay teachers, mostly natives, and about 350 students in the society's colleges.

Church Missionary Society.—The annual meeting of the Church Missionary Society was held in London, May 4. The Hon. F. Maude, R. N., presided, taking the place left vacant by the death of the Earl of Chichester, the former president of the society. A resolution was adopted expressing a grateful sense of the value of the services of the late president. The total ordinary income of the society for the year had been £201,287, a sum higher by £835 than the largest ordinary income ever previously reported. The expenditures had been £211,992. The report spoke of the progress of the native churches, some of which were planning their own missions and sending out their own missionaries; of the bravery with which native converts remained true to their professions in the face of great peril; of the abundant fruit granted to the society's direct missionary labors in the heathen and Mohammedan world; of the lament of one heathen antagonist that "the leprosy of Christianity is spreading fast everywhere"; and of the progress of the zenanas, the medical departments, and the work of translation of the Bible and Christian books into the languages of the heathen countries. The following is a general summary of the missions, which are situated in Western Africa (including Sierra Leone, Yoruba, and the Niger river), Eastern Equatorial Africa, Egypt, Arabia (Aden), Palestine, Persia, India, Ceylon, Mauritius, China, Japan, New Zealand, Rupert's Land, and the north Pacific region of British America: Number of stations, 271; of missionaries in holy orders (European 230, Eurasian, etc., 11, native clergymen 250),

491; of European lay missionaries, 38; of European female teachers, 20; of Eurasian teachers, 25; of native Christian unordained teachers of all classes, 3,289; whole number of missionaries and teachers, 3,863; number of native Christian adherents (including catechumens, but the great majority baptized), 185,878; of communicants, 42,717; of schools, 1,868, with 69,256 pupils. A serious feature in the history of the society's missions has been the murder of Bishop Hannington, of the Eastern Equatorial African mission, by order of the King of Uganda, followed by the institution of persecution against the native Christians in that country, with many martyrdoms.

Liberation Society.—The Triennial Conference of the Society for the Liberation of Religion from the Patronage and Control of the State was held in London, beginning May 4. Mr. Alfred Illingworth, M. P., presided. The treasurer's report showed that the society had received, during the past year, £7,957, and had paid out £7,438. The report of the Executive Committee represented that the question of disestablishment was now in such a position as to command the attention of Parliament. Nowhere had the cause made more progress than in Wales. The recent division on Mr. Dillwyn's motion for the disestablishment of the Welsh Church showed the extent to which the feeling prevailed, twenty-seven out of the thirty Welsh members having voted for it. In Scotland, Mr. Gladstone's influence at the last election had kept back the question, as was shown at the recent division on Dr. Cameron's motion for disestablishment. The committee had carefully prepared for the event of the recent election, and the result was the return of an unprecedented number of candidates in favor of disestablishment. Events within the Establishment were all tending to show that the existing system was untenable. The result of the general election had been to give a great impetus to the movement for church reform. But churchmen were greatly divided as to what should be done, and there was a growing conviction that no really effective reform could be had so long as the Church remained established. Resolutions were passed recognizing the results of the late general election as a sure indication of the successful issue of the present labors of the society; in view of the increased activity of the defenders of the present established system, the possibility of an appeal to the constituencies at an early period, and the present state of political parties, acknowledging the necessity for such action as will be not only firm and vigorous, but adapted to the advanced position of the society's movement. "In particular," the resolution continues, "this Conference urges the importance of efforts to secure the inclusion of the principle of disestablishment in the future policy of the Liberal party, and of any future Liberal administration." Another resolution favored the immediate amendment of

the Burial Acts on the lines proposed by the Government bill, which was at the time pending in Parliament—which, it was assumed, if carried, would render legal shorter notices of funerals, or, the clergyman consenting, funerals without notice, would give to extra-parishioners the same rights of burial by their own ministers as parishioners enjoyed, and would remove sectarian distinctions from cemeteries. A resolution was also adopted declaring that "the question of national education having been raised anew by the appointment of a Royal Commission, and also of a select Committee of the House of Commons in regard to educational endowments, the Conference is of opinion that it is of the highest importance that strenuous efforts should be made to put an end to the grave violations of religious equality committed under the existing laws, and to place the educational system of the country, in all its branches, on an equitable and unsectarian basis. And the Conference is further of opinion that, to secure such a result, the funds of the nation should not be appropriated to either schools or colleges of a sectarian character, and which are under the sole control of denominational managers." A resolution, adopted after the reading of a paper by the Rev. J. Guinness Rogers on "National Religion without a State Church," expressed the opinion of the Conference that "national religion can exist only to the extent to which religion influences the minds and lives of the individuals of whom the nation is composed, while the establishment of churches by the State necessarily involves more or less of injustice, and both fetters the action and secularizes the character of the churches which are established. Looking to the zeal and to the liberality of the various religious communities of this country, the Conference is firmly convinced that a policy of disestablishment—already successfully adopted in other parts of the British Empire and in the United States of America—may be adopted in the mother-country also, not only without danger to its highest interests, but to the promotion of the spiritual welfare and the peace and unity of its people."

The secretary of the society reported that there were now 228 members of the House of Commons who might be relied upon to support the cause of disestablishment; there were 63 doubtful members. Of the views of 13 they had no definite information; and there were only 29 Liberals in the House of Commons who had distinctly declared against disestablishment. The Conference approved the movements for disestablishment in Wales and Scotland, and denied the practicability of attempting by parliamentary legislation to effect a reform of the Church.

The Church Union.—The twenty-seventh annual meeting of the English Church Union was held in London, May 27. Viscount Halifax presided. The report of the Council showed that the Union had received a net gain of 600 mem-

bers during the year, and that the whole number now on the roll was 21,470. Notwithstanding the comparative cessation of prosecutions for ritualism, the sustentation fund was still needed to supply the losses of income which had been incurred by some of the deprived clergy, and there was a possibility that more might yet be added to this class. While few things were more to be deprecated in the interests of the Church than identification with any one political party, it was the duty of churchmen, whatever their political opinions, to show that whoever attacked the Church could not reckon on their support. The fact that the revival of church principles had been most effectually manifested in the large towns went to show that the strength of the Church would be in exact proportion to the adherence of her members to her principles, and that the only real and adequate church defense was the teaching of church doctrine. Seventeen bishops had consented to become vice-presidents of the Union. The president of the organization asserted in his address that the three principal objects for which the Union had contended during the last twenty years—viz., to win back for the Church of England her ancient freedom from the interference of secular courts external to herself in the decision of spiritual matters; the vindication of the right of the Church to use her ancient ritual; and the complete organization of the clergy and laity in synods and conferences—had been obtained, or were in the course of being obtained. As the lower house of the Convocation of Canterbury had declared by resolution, the Church of England was national, not in the sense that the nation, as such, might deal with its doctrine and discipline, but that it had a duty to the whole nation. A resolution was adopted, declaring, without committing itself to a particular measure, that the Union is ready “to support any well-considered scheme for the prohibition of the sale of next presentations, and the gradual extinction of the traffic in livings.” Other resolutions urged the importance of the restoration of the ancient diocesan synods of the Church, in addition to the conferences of clergy and laity; and, while expressing a disposition to “welcome any legitimate scheme by which the co-operation of the laity in church work can be effectually encouraged,” renounced all proposals for the creation of church boards with statutory authority, and insisted, in the case of voluntary parochial councils, on the necessity of such councils being limited to communicants.

Church Defense Institution.—The annual meeting of the Church Defense Institution was held in London, Aug. 2. Lord Egerton, of Tatton, presided. The report of the Executive Committee related that the period dealt with, embracing as it did two general elections, had been one of much anxiety and importance, involving the most serious issues to the cause of

church and state. The spirit and success with which the Liberationist attack in the autumn of 1885 had been met had speedily demonstrated to its promoters that such an attack was at least premature. Still, while the Church might be secure from direct attack, there were many ways in which she might be harassed and her usefulness impaired; and the need of watchfulness and hard work would therefore be as great as ever. The receipts of the Institution had been £12,911, as against £4,570 in the previous year. Details were given respecting the work performed by the Institution during the year, which appeared to be directed chiefly to counteracting the efforts of the Liberation Society.

Convocations.—The Convocation of Canterbury met Jan. 13, in St. Paul's Cathedral, when the Latin sermon was preached before it, and Archdeacon Sumner was elected prolocutor of the lower house, to succeed Lord Alwyne Compton, who had been nominated to be Bishop of Ely. The first meeting of the Convocation for the dispatch of business was held at Westminster, Feb. 16. The meeting was made of peculiar interest by its being the occasion of the formal installment and opening by the archbishop of the newly established House of Laymen. The new house consists of 102 laymen, “faithful members of the Church of England,” who are elected by the different diocesan councils. It does not exist as an independent body of convocation, for it has not even the power of the other two houses, but merely as a body brought together to consult with the Convocation as previously constituted; and it is wholly optional with the other two houses whether it be consulted. A considerable number of the members of the House of Laymen were already members of Parliament, or otherwise prominent in the public life of England. The archbishop, in addressing the newly constituted house, mentioned several subjects concerning which the Convocation would like to hear the views of the members. Among them were those of church patronage; the sale of glebe-lands; “the disproportion of clerical work or responsibility to clerical incomes”; parochial councils, in which were involved the questions of the greater participation of the laity in church affairs, and “some power of remonstrance against the appointment of a pastor whom the parishioners can show to be unfit”; and the institution of a central organization which should worthily answer to the reformed parochial organization, concerning which the speaker remarked that he did not see “how a national body of bishops, clergy, and laity, can express themselves fully, so long as the two convocations meet apart, unreformed, incomplete, and without adequate lay counsel.”

Much attention was given to the consideration of the subject of “Church Reform,” under which title are included a number of propositions for correcting features, the work-

ing of which is inconvenient or has been attended with abuses, and for making the Church more fully representative of the people of the nation. The bishops, after a discussion of two days, agreed upon a report that, in their opinion, the reforms which required immediate attention were the removal of the various evils and abuses connected with the sale of patronage; simpler and more effective methods of removing from the cure of souls incompetent and criminous clergymen; the correction, so far as may be found expedient and practicable, of anomalies in the endowments of the Church; the enlargement of convocation and the statutory concession to it of increased power in the internal regulation of matters involving the efficiency of the Church; and the assignment to "the faithful laity" of a more clearly defined share in the administration of the affairs of the Church.

The house further adopted a report expressing its approval of a comprehensive measure of reforms, the draft of a bill providing for which was to be introduced by the archbishop into the House of Lords; approving the Pluralities Acts Amendment Act of the previous session of Parliament, but suggesting that further steps were urgently required, "and that greater security against the ministrations of unworthy clergymen should be given to parishes, by the simplification of existing modes of procedure, and by enactments which may obviate the ruinous costs which at present are often incurred in suits of this nature, especially in cases of suspension from office and deprivation"; recommending the formation of a central fund raised by equitable taxation of ecclesiastical incomes—the principles of which already existed in the system of first fruits and tenths—for the reduction of existing anomalies in clerical incomes, and to improve the incomes of benefices of small value; calling attention to plans for enlarging the representation of the parochial clergy, and for the institution of "such changes in the rubrics and such additions to the services of the Church, as may give fuller scope to the quickened life and energies of the Church." The house also declared that, "while we give full weight to the desire that has been expressed for the admission of the faithful laity of the Church of all classes to a substantial share in the control of Church affairs, we still feel that we require to be more fully informed as to the extent to which it is deemed desirable that the laity should share in the administration of the affairs of the Church. We look for valuable information and assistance in this, as in other matters, from the newly constituted House of Laymen. Meanwhile we recommend the formation of voluntary parochial boards or councils, which, we are well aware, have been recommended in many dioceses, and have been in operation in many parishes. It is otherwise as regards parochial boards or councils with defined statutory powers. The formation of

these we can not, as at present advised, recommend until the principles on which they are to be founded shall have been fully considered by the synods of the Church, and shall have received their general approval. It must always be remembered that parochial boards, however constituted, can only properly be regarded as a portion of a still further developed church government. But this development can only be brought about by degrees, and by the steady progress of organized growth. For the present we must be content to endeavor to bring about some measures of united deliberation between the two separate convocations, which would necessarily form the first stage in the organization of that national church council of clergy and laity which is obviously desired by many of the memorialists." The House of Laymen declared its opinion that "any scheme of church patronage amendment, which would directly or indirectly divert any portion of the revenues of a benefit to the advantage of the patron, would be inadmissible, as secularizing the property given to the parish for God's service"; that "the evils complained of in the sale of advowsons can be better dealt with by proper checks and modes of restraint rather than by the prohibition recommended in the draft bill"; and "that all sales of advowsons should in future be conducted by a public diocesan authority, and all other sales be invalid."

The Convocation of York met in York Minster, Feb. 23. The Archbishop of York, in addressing the synod as president, said that in view of the question of the disestablishment of the Church, brought forward at the general election, a number of suggestions of reforms likely to strengthen the Church had been made. They were met, however, with the difficulty that most of these reforms required the aid of Parliament. His belief was that there was more danger from the want of agreement among the parties in the Church as to the required reforms, than from the refusal of Parliament to adopt measures. However that might be, it was their duty to consider reforms. The hands of convocation should be untied; they wanted power to transact business for the good of the Church with the same freedom which other religious and secular bodies enjoyed, subject only to their doing nothing contrary to the laws of the realm. Failing that, the number was likely to swell of those who now said that even disestablishment with freedom might be preferable to establishment with enforced inaction. What was now in their power was to agree upon the reforms required, but they must be tolerably unanimous, and, if they should be refused by the Crown or by Parliament, the question of disestablishment would then have passed into a new and somewhat dangerous phase. How far ought the fear of disestablishment to have an influence over them in dealing with those questions of reform? The outside clamor had

no doubt quickened the national conscience on the subject. Their danger would perhaps be that in framing schemes of reform they might not take sufficient account of the divided state of things in the Church, and of the opposition that might be experienced. The report of the Convocation of Canterbury on Church Reform was concurred in. The lower house approved most of the clauses of the proposed Church Patronage Bill, and requested the president to appoint a committee to report on the best means of securing a due observance of the Book of Common Prayer without resort to the ecclesiastical courts, and of a committee on the details of a proposed House of Laymen.

The Convocation of Canterbury met again May 11. The upper house, considering a letter received from the Bishop of Zululand, asking for guidance on the question of baptizing persons living in polygamy, requested the archbishop to communicate with those churches in the Anglican communion in which questions relating to that subject had been found to be of pressing importance. A report was presented and considered respecting drafts of bills on the method of making changes in the rubrics, which had been under consideration in one shape or another for about twenty years. A committee which had been appointed to consider the question of first fruits and tenths presented a report recommending a further discussion of the subject between the two houses, and was reappointed. The consideration of a draft bill for additional forms of service was referred to a committee of the whole.

The lower house considered and adopted a report on proposals for church reform, which was presented by its Committee on Relations of Church and State. The report began with a reference to what had been attempted during the last fifty years or more in the direction both of church reform and church extension. In every department of church life many great improvements had already been effected, some without the aid of the civil legislature, and others by the authority of statute. With regard to such matters as the restoration of churches, the training of candidates for holy orders, the arrangements for public worship, the increase of services, the education of the poor, the care bestowed on preparation for confirmation, and the frequency of its administration, the exercise of patronage, and the employment of lay agency, the Church had, without going to Parliament, made a wonderful advance. For some of the reforms which had been brought about, the authority of Parliament had been needed. Prominent among them were the erection of new bishoprics. Many acts of Parliament had been passed having for their object the remedy of evils from which the Church suffered. Among them were the Tithe Commutation Acts, the acts under which the Ecclesiastical Commissioners had power to aid the clergy of poor and populous parishes, the Church-Building Acts, and the

Pluralities Acts. The revival of the active functions of convocation was a notable church reform of recent years. The report called attention to the following leading principles as underlying all true church reform: 1. The Catholic faith and Apostolic Order of the Church of England are unalterable, and may not be touched. 2. There is, by divine appointment, a distinction of office between clergy and laity; and the powers intrusted to the laity may not extend to such things as belong to the office of the clergy. 3. The unit of the church's episcopal system is the diocese and not the parish; therefore the parish, the parish priest, and the congregation must be subordinate to the diocesan authority of the bishop. 4. The Church of England is national, not in the sense that the whole nation, as such, may deal, as it will, with the Church's doctrine and discipline, but in the sense that the whole nation has a claim to the administration of its ordinances and the services of its clergy in accordance with that authorized doctrine and discipline, and not otherwise. 5. To the Church's synods, by constitutional right, belongs a legislative power, subject to such sanction of the Crown and authority of Parliament as the authority of the Church and realm require. 6. The right of ecclesiastical patronage is to be primarily regarded as having the character of a trust rather than of a property. 7. The property of the incumbent in the income of his benefice is held subject to the efficient discharge of the duties of the cure. 8. The Church of England, as part of the church of Christ, exists primarily for spiritual purposes.

The report further described the present system of church courts as unsatisfactory, and expressed the belief that a tribunal for hearing appeals to the Crown in ecclesiastical cases must be created, which should do justice both to the Church and to the civil power. One of the most needful reforms was the restoration of the Church's effective voice in ecclesiastical legislation. The long abeyance of the convocations had accustomed the public mind to legislation by Parliament alone, and a claim of legislative power for the Church still seemed strange to many; but such a claim was strictly constitutional, and the full admission of that claim had now become a practical necessity. The Church should be recognized as capable of adapting itself to the varying needs of the time; and Parliament was less than ever qualified, or, indeed, desirous to be the sole legislature for the Church. The power of self-regulation, under proper control, must be restored to the Church. There was no wish to demand independence of the constitutional control of Crown and Parliament; but what the Church had a right to ask was, that greater facilities should be afforded for giving legal effect to the deliberate conclusions of the provincial synods, aided, as they now would be, by the respective Houses of Laymen. The restoration of due legislative power to the provincial synods

would make more necessary an enlargement of the lower house of the Convocation of Canterbury. With an increased representation of the parochial clergy in that house, the occasional united action of the two convocations would become a practical question. The creation of statutory parochial councils was deprecated. Special attention was invited to the importance of strengthening the bishop's authority, by means of a diocesan synod of his clergy or of a council of clergy and laymen, not to share his responsibility, but to aid him by its advice. The house reaffirmed the principles of a bill to provide facilities for the amendment, from time to time, of the rites and ceremonies of the Church which had been agreed upon in 1879; and declared that, while it could not recommend the establishment of parochial councils with statutory powers, voluntary parochial councils summoned by the clergy, and composed of the faithful laity of all classes, might in many parishes be established with advantage—such councils being subject in all matters to the bishop.

In the House of Laymen, the chairman made a statement regarding the functions of the house with respect to petitions. They were not a body to whom a petition could properly be addressed. A resolution was adopted recommending that power should be given to the bishop, acting with the concurrence of his council, to enforce the resignation of incumbents who may be shown to be unfit, for certified causes, to perform the duties of their cures. The bill on church patronage, which the archbishop had introduced in the House of Lords, was approved. The house expressed its desire that the Bishop of Peterborough's bill, relative to seats in churches, might be so shaped as to secure, as far as practicable, the common-law rights of parishioners to the free use of seats in parish churches.

The convocations of the two provinces met, according to summons, at their respective places of meeting, August 6, were formally organized, and were then prorogued.

Conference on Church Reforms.—A public conference, attended by Churchmen and Nonconformists, was held in London, Feb. 24, for the discussion of questions of church reform. Mr. A. Grey, M. P., presided. Attention was called to some resolutions which had been previously adopted at a meeting of conformist and non-conformist ministers; and the chairman, in his opening address, presented as the principles which had induced a junction of men of every party, and had prompted them to stand side by side as the advocates of a reformed national Church of England, first, that the teaching of morality to the people was a proper function of the state; and, second, that the Church ought to be maintained as a national institution, not because it was inseparably connected with any immutable sectarian dogmas or incontrovertible and particular doctrines, but because it was the institution through which, under such con-

ditions as might be imposed by Parliament, the truths of religion were preached to the people. Resolutions were adopted, declaring that "the basis of all true church reform must be found in the recognition of the fact that constitutionally every subject of the state is a member also of the national Church; that for practical purposes the rights thus derived are best exercised by the whole body of parishioners," and that "the parishioners, through their representatives, should be empowered by law to exercise a real control over the appointment of the ministers, the disbursement of the funds, and the arrangement of the services of the national Church in every parish."

Parish Churches Bill.—The Parish Churches Bill, which the Bishop of Peterborough has introduced into the House of Lords, declares in the preamble that, according to the common law of the realm, every parish church in England and Wales is for the free use in common of all parishioners of the parish to which it belongs, for the purposes of divine worship according to the rules and ceremonies of the Church of England. For the remedy of encroachments that have been made on the rights of parishioners "by the appropriation of seats and pews to the exclusion of others, and especially of the poorer classes, to the great hindrance of religion," it enacts that every parish church in the kingdom—saving vested interests, churches built under special local acts, and modern churches possessing legal scales of pew-rents assigned under the Church-Building or New Parishes Acts—shall be free, for the purposes and under the conditions recited above.

Oxford Laymen's League.—An organization of laymen has been formed for contending for the maintenance of the establishment outside of politics. It is called the Oxford Laymen's League for the Defense of the National Church. Its essential principle is defined in its circular to be the union of the religious laity throughout the country without reference to sects or parties; and this point is again emphasized in the words, "Nothing can be more fatal to the Church than its connection with any one political party; its only permanent support is the party of religion." The League proposes by lectures and publications to set facts bearing upon the question of disestablishment before the nation, and to answer the arguments and representations set forth by the advocates of that measure.

Bishop of Edinburgh.—The Rev. Dr. Dowden, Preceptor of the Theological Hall of the Scottish Episcopal Church, was on the 6th of August chosen to be Bishop of Edinburgh, in the place of Bishop Cotteril, deceased.

Church Congress.—The Church Congress met at Wakefield, October 5, and was opened with a sermon by the Archbishop of York. The Bishop of Ripon presided, and, in his opening address, mentioned the subject of church reform as one that would be presented with particular prominence. This subject was

considered under three special aspects, the first of which was that of "Patronage and Endowments—(a) Patrons, their Obligations and Limitations in the Exercise of their Rights; (b) Revenues, their Distribution with a View of increasing the Efficiency of the Church." Canon W. H. Fremantle, of Canterbury Cathedral, considered how the redistribution of incomes would affect church patronage. The other principal speakers on these topics were Canon Lefroy, Mr. Spottiswoode, the Rev. F. F. Goe (Bishop designate of Melbourne), Chancellor Espin, and others. The second branch of the general topic was discussed under the heading of "Church Government and Representation; Convocation, its Reform, Extension, and Powers; and the Position of the Laity in Church Councils," by Prebendary Ainslie, the Rev. S. A. Main Walrond, the Dean of Armagh, Mr. W. H. Houldsworth, M.P., Mr. J. H. P. Lereseche, the Dean of Durham, and Viscount Halifax. The third branch of the subject was considered under the headings "The Clergy; Clerical Efficiency: How best to secure it; Extension of the Diaconate," by Archdeacon Blunt, Mr. James Crotcher, Archdeacon Long, the Rev. C. H. Sale, the Dean of Ripon, and other persons. On the subject of "Christian Evidences," papers were read by the Rev. J. M. Wilson, Prebendary Worlidge, the Rev. J. J. Lias, Archdeacon Hughes Barnes, and the Rev. W. H. M. Hay Aitken. On the subject of "The Church in Relation to the Rural Populations; the Chief Causes of Weakness, and the Best Means of remedying Them," the principal speakers were the Bishop of Liverpool, Mr. Stanley Leighton, M.P., Canon Andrew, and the Bishop of Exeter. The subject of "The Increase of the Episcopate, and the Organization of a New Diocese," was discussed with special reference to the proposed foundation of a new diocese of Wakefield, by the Bishop of Southwell, the Vicar of Wakefield (Rev. Canon Stratton), and other speakers. Concerning "The Church in Relation to State Questions; the Advantage of an Established Church, and the Best Means of instructing all Classes as to its Origin, History, Revenues, and Work," papers were read by Prof. Stokes, Mr. A. E. Miller, and Mr. William Inglis, President of the Workingmen's Church Defense Association. The discussion of the special question with reference to the work of foreign missions, of "How may Difficulties arising from Polygamy, Slavery, and Caste best be met?" was participated in by the Bishop of Exeter, Canon Ashton Mayne, the Rev. T. W. Windley, the Bishop of Zululand, and the Rev. J. Johnson, a native West-African minister. Other questions discussed were, "The Church in Relation to the Urban Populations; how may Lapsed Members be won and the Church's Hold on Members in all Classes be strengthened?"—principal speakers, the Bishop of Rochester, Canon Eliot, of Bournemouth,

Prebendary Hodgkinson, and Mr. J. Trevarthen; "The Uses of Music in the Services of Cathedrals, Town Churches, and Churches in the Rural Districts"—Mr. Walter Parratt, the Rev. Thomas Rogers, Mr. E. H. Turpin, and Mr. Edward Griffith; "The Duty of the Church in Respect to the Homes of the Working Classes, with a View to the Promotion of Morality, Comfort, and Thrift"—Canon Stratton, Miss Mason, Sir W. Worsley, and Archdeacon Emery; "The Education Question, with Special Reference to (a) the Proposal for Free Education, (b) Religious Teaching in Schools of all Grades, and to Adults"—Lord Norton, the Rev. Arthur Carr, Archdeacon Barber, and the Rev. J. Nunn; "The Church in Relation to Social Questions, particularly in Respect to Recreation and Literature"—the Dean of Manchester, Lord Brabazon, and Miss Yonge, of Winchester; and "The Parish Churches Bill." A special meeting for workingmen was held, at which addresses were delivered by the Bishops of Ripon and Manchester; also a meeting for women, and one for delivery of addresses on "The Spiritual Life."

Provincial Synod of Canada.—The Provincial Synod of Canada met in Montreal, September 8. The opening sermon was preached by the Bishop of Algoma. The Rev. John Langtry was elected prolocutor of the lower house. Resolutions inviting co-operation in a movement for Christian union were adopted, to be sent out to other Christian bodies in the Dominion. The use of unfermented wine in the communion was forbidden. The Synod decided that, in order to encourage brotherly feelings between the Church in Canada and the Church of England, the Metropolitan of Canada should send notice of all ordinations to the Archbishop of Canterbury.

ARCHÆOLOGY. (American.) Work of the Peabody Museum.—The eighteenth and nineteenth reports of the Peabody Museum of American Archaeology and Ethnology, the latter of which is dated April 9, 1886, record investigations which were made under the direction, or with the co-operation, of the museum in various parts of the United States and of Central America. For particular and thorough work, the curator chose the valley of the Little Miami river, in Ohio, and the closely associated archaeological region. The three years' work on the large group of mounds and earthworks on Mr. Turner's farm, near Madisonville, was brought to completion in 1885. A special report is given of the exploration of a mound on the farm of Mr. Benjamin Marriott, adjoining Mr. Turner's, which yielded many objects of interest, including some exhibiting skill in workmanship. Besides two or three thousand broken and split pieces of bones of animals, river-shells, a part of a clam-shell, and pieces of mica, there were found needles of bone; awls of bone, one of which was ornamented with rows of fine cross-cut lines; flaked knives; handles of antler, two of which held points,

one of bone and one of chipped stone; bear's teeth, some showing perforations and some containing insertions of pearl; breast-ornaments and ear-ornaments of copper; and parts of human skeletons. Some new objects having been discovered in one of the mounds in the Scioto Valley, near Chillicothe, a brief examination was made of that site. Among the specimens obtained there were two copper celts, some copper plates, and several copper ear-ornaments, some of which were covered with meteoric iron like a few of those in the Turner mounds, and a celt made of meteoric iron. These discoveries are regarded as furnishing an important link connecting the people who built the earthworks in the Scioto Valley with the builders of the group on the Turner farm in the Little Miami Valley. A large cemetery was explored on the opposite side of the Little Miami river from the ancient cemetery, near Madisonville, which had already been explored, and from it were obtained many thousand specimens and several skeletons. Among the specimens were large pipes cut in stone in the form of human figures, examples of which had hitherto only been found on the surface, now for the first time met associated with skeletons. These pipes had been attributed to the people who made the mounds in the Ohio Valley, but, the curator says, "now we know that they belonged to a people who buried in regular and large cemeteries, where the bodies were generally placed in extended postures. We also," the report continues, "have obtained facts indicating burial ceremonies, which, with the many objects associated with the human remains, will permit us to draw a fair picture of the arts and customs of this particular people, who need no longer be confounded with those who built the altar-mounds, stratified mounds, and large earthworks in the valley." An examination was made of some mounds on the bluffs of the Mississippi river, in Atlas township, Pike county, Ill., and also of some mounds in Calhoun county, along the bluffs of the Illinois. The most important result of this work was, in its leading to the formation of an opinion that the mounds on the Illinois bluffs were not made by the same people who built those on the Mississippi bluffs in Pike county. "In the latter, few if any objects of an imperishable character were placed with the dead. In the former have been found pottery of an exceptionally fine character; elaborate ornaments of shell, stone, and copper; pearl, shell, and copper beads; and implements made of bone, stone, and copper. From all I can learn of the burial-mounds of the Illinois bluffs," says Mr. Putnam, the curator of the museum, "they resemble in contents, size, and structure the simple burial-mounds of the Ohio Valley, while those on the Mississippi bluffs have nothing in common with them except that they are burial-mounds." Dr. C. C. Abbott, in his examinations of the gravels at Trenton, N. J.,

besides recovering several interesting palæolithic implements from various depths, found a part of a human under jaw sixteen feet below the surface, not far from where a piece of the tusk of a mastodon or mammoth had been found several years previously. The museum has received from Dr. Flint, in Nicaragua, four blocks of tufa containing human footprints, which had been found under several layers of volcanic material, on the shores of Lake Menagua, in that country. Dr. Flint had also furnished the museum with a number of ornaments in jade, one of which, when compared with a cup of the same mineral from Pekin, in China, proved to be like it in color, hardness, and specific gravity. No place is known where jade is found or has been found *in situ*, except in China; and the distribution of ornaments of that mineral in prehistoric sites all over the world is held, in the absence of evidence to make any other supposition plausible, to imply that some kind of intercourse existed in the age to which the remains belong. Some of the ornaments in question had been made from celts by cutting them into halves and quarters, and still exhibited parts of the cutting edge of the original implement. This implies, at least, that the supply of jade was not abundant, else the ornaments would have been made from fresh stones, and not by cutting up tools which already had considerable value.

Animal-Mounds in Wisconsin.—Dr. Stephen D. Peet, of Wisconsin, has made a study of the prehistoric earthworks around Delavan Lake, and calls attention to the fact that the ridges at Lake Lawn, which have not been observed to have any particular form, really conceal a variety of symmetrical figures. The plotting of them, he says, has revealed the fact that they are in the shape of birds, turtles, and other creatures, and that many of them were originally very accurate imitations. He has discovered at least ten bird effigies in this one group; but there are several effigies which have been obliterated. Thirty-seven of these forms are here found within the space of ten acres, and so close together as to make the ground extremely rough. The size of the mounds varies from fifty to a hundred and fifty feet in length, and from thirty to fifty feet in width.

Mounds in Manitoba.—Mr. C. N. Bell, of Winnipeg, read a paper in the British Association on the sepulchral mounds of the Canadian Northwest, in which he showed that there is a continuous line of mounds from the mound-centers of the Mississippi river, down the Red river, to Lake Winnipeg. Human remains, much decayed, were found in the mounds, all buried by being placed on the surface under heaps of earth in which patches of ashes and charcoal frequently occurred, but no remains of funeral feasts were found. Indians, when first met with, buried weapons with their warriors, but none were found in these mounds, although implements and ornaments of shell,

bone, and stone were common, as well as pottery, which was unknown to the Indians of Northwest Canada on the arrival of white immigrants. One mound had a floor of burned clay and bowlders, similar to the sacrificial mounds and altars of Ohio. Ornaments were found made of sea-shells, which must have been carried 1,200 miles.

The Maya Inscriptions.—Dr. Augustus Le Plongeon, who has spent several years in archaeological research in the ruined cities of Yucatan, believes that he has discovered the key to the Maya hieroglyphics, and that he is able to give correct interpretations, having definite historical significance, to the figures, carvings, and inscriptions which are found on the monuments. In a paper which she read before the New York Academy of Science, Mrs. Le Plongeon described the "Governor's House" at Uxmal, with twenty rooms, and another building near it, having 102 rooms, with ceilings composed of stones overlapping so as to form a triangular area, and their elaborate ornamentation of mastodons' heads and feathered serpents. One series of designs was interpreted as recording the history of the foundation of the city, with the names of the founders. Traces of paint were found in one of the courts, and impressions of hands that had been dipped in red paint and pressed against the walls as a religious invocation. In a building at Chichen-Itza were observed several figures in profile of men having long beards; and in another building in the same city mural paintings representing religious ceremonies, domestic scenes, and battles, the figures of which for skill in execution were compared with the best works of ancient Egyptian art. A mausoleum was adorned with sculptures of macaws and leopards, and a leopard-sphinx, and contained a large statue, two funerary urns, and articles in jade, chalcedony, and greenstone. The statue was drawn out from the tomb, but was afterward taken possession of by the Mexican Government.

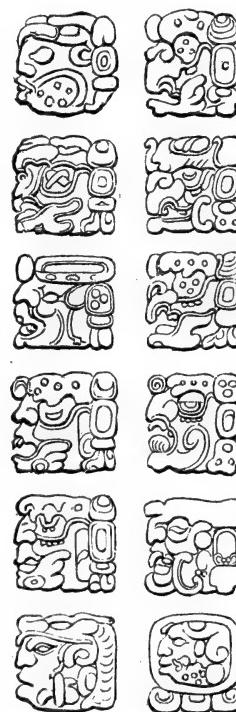
Dr. Daniel G. Brinton relates in the "American Antiquarian" that Mrs. Zelia Nuttall Piñart, who is acquainted with the Nahuatl language, has succeeded in reading the ancient Mexican picture-writing; and he adds to his announcement that "the results she has obtained cast an entirely new light on ancient Mexican history and social life, and her conclusions, if established, will deal a severe blow at most of the prevailing theories regarding the government, religion, and mythology of the Aztec and allied tribes."

The Ruins of Quirigua.—Mr. A. P. Maudsley has published an account of his excavations of the ruins of Quirigua, which are situated on the river Montagua, in Central America. They consist of numerous square or oblong mounds and terraces, varying from six to forty feet in height, usually faced with worked stone, and ascended by flights of stone steps. The most interesting objects are thirteen large monoliths

arranged irregularly around a kind of plaza. Six of these are tall stones, from three to five feet square, and standing from fourteen to twenty feet out of the ground; the other five are shaped so as to resemble huge turtles or armadillos. All the monuments are covered with elaborate carvings, including huge human figures on the tall monuments; tables of hieroglyphics; and squares or cartouches of picture-writing, in which grotesque figures of men and animals appear prominently. The human figures are conventional, the picture-writing designs relatively free. Usually most of the designs, even in what appears to be purely conventional scroll-work, may be found, on careful examination, to be derived from the representation of a face. No figures derived from leaves or flowers have been observed, but a plaited ribbon is occasionally employed, and free use is made of plumes of feathers; and these are often very gracefully arranged and beautifully carved. The fifteen monuments are divided into two groups, in one of which the human figures are all of men, and in the other all of women. Mr. Maudsley calls attention to the fact, as showing an advanced and peaceful condition of existence in the people

who built this city, that representations of weapons of war are entirely absent from all the monuments. Casts of many of the objects described have been placed in the Archaeological Museum at Cambridge, England.

The Monuments of Copan.—Mr. Maudsley has made a systematic examination, with surveys and measurements, of the principal ruins of the city of Copan, which were described by Stephens in 1840. He believes that the nature of the structures has been in some points mistaken; that the so-called pyramids are the raised foundations that supported roofed buildings, and that these were approached by steep flights of



INSCRIPTION FROM COPAN.

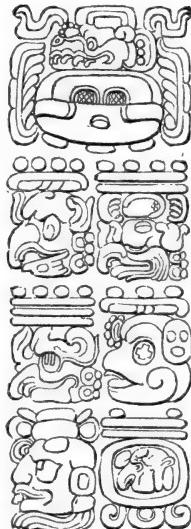
steps; that the long heaps of stones which were taken to be the ruins of city walls are, in fact, the remains of single-chambered stone-

roofed houses, and that the great "river-wall" is a wall only in appearance, and is the result of the river having eaten into the terraces and foundations of the east side of the ruins, where the plan of the structure was originally the same as on the other sides. The excavations yielded, among objects of interest, a few worked stones, including some beads and a whorl of jade, pearls, and carved pieces of shells, a pot containing a red powder and several ounces of quicksilver, human bones, dogs' teeth, and jaguars' skeletons, parts of one of which were painted red. From the fact that the Spaniards failed to make any mention of the cities the ruins of which are now attracting attention, or of anything like them, and that the settlements they did speak of are unlike these, Mr.

Maudsley draws the conclusion that the sites had been deserted and the buildings buried in the forest long before the conquest. In examining the sculptured ornaments and hieroglyphics, a profusion of which is characteristic of Copan, the author was struck with the frequency of the occurrence of the serpent-symbol, usually the plumed serpent. It appears in the scroll-work; is often found in connection with a natural or more or less grotesque human head; and occurs under various disguises. A curious feature in the inscriptions, which the author believes should be read in double columns, from left to right, downward, is that all those which appear complete from the beginning, are headed by an initial scroll, and begin with the same formula, usually extending through six squares of hieroglyphic writing. The sixth square, or sometimes the latter half of the sixth square, is a human face, usually in profile, inclosed in a frame or cartouche.

Babylonia and Assyria. The Wolfe Expedition to Babylonia.—The report of the Wolfe Expedition to Babylonia has been published in the papers of the Archaeological Institute of America. The expedition consisted of W. Hayes Ward, D. D., in charge; Mr. J. H. Haynes, of Robert College, Constantinople; and Dr. J. R. S. Sterrett, who had been engaged with the explorations of the Institute in Asia Minor. The expedition was intended to make a preliminary examination of Chaldea during the winter months, and investigate the practicability of further excavations there. A firman was ob-

tained from the Turkish Government authorizing the visitation of the country, but forbidding all excavations. After leaving Constantinople the party visited the American mission at Marath, in the vicinity of which are several ruined Hittite towns and Hittite inscriptions; and Jerablus, on the Euphrates river, the site of the old Hittite capital, Carchemish. At Arslan Tash, not far from Birejik, two enormous lions in black basalt were found and photographed, and a prostrate bull was found. Proceeding to Bagdad, the expedition visited Mosul, Koyunjik (Nineveh), Khorsabad, and Nimrud, places which had been the scenes of explorations by Layard, Botta, and Place, and Erbil, the Arbela of ancient history, while it also passed numerous mounds which have not been opened. From Bagdad it went to Babylon and Hillah, on the way visiting Abu-Habba, the site of the ancient Sippara of Shamash, which had been explored by Mr. Rassam. While at Hillah it visited Birs Nimrud, the ancient Borsippa, and the traditional site of the Tower of Babel. From Hillah the expedition started, on the 21st of January, 1885, on a journey through the country to the south of Babylon, lying between the Tigris and Euphrates rivers, which no American traveler had ever traversed, which had not been visited by any European traveler for thirty years, and parts of it never. Numerous mounds were observed all through the region, only a few of which have been identified. Among them were Niffeh, the Nipur of the inscriptions, and probably the Calneh of Genesis, one of the oldest and most important cities in Babylon; Tello and Zergbul, where the French explorer, M. de Sarzac, had made some discoveries of great value, and Warka, the biblical Erech. A second visit to Abu-Habba, after his return to Hillah, satisfied Dr. Ward that that mound was the Sippara of Shamash; but he could find nothing pointing to the existence at that place of the older Sippara of Anunit, or Agade, which archaeologists had associated with it. He heard, however, at Saklanich, on the Euphrates, of a large mound called Anbar, which, on visiting it, proved to answer well to the descriptions which have come down of the situation, shape, and dimensions of the ancient capital. "The discovery of this city," Dr. Ward says, "which represents the Agade, or Sippara of Anunit, the Accad of Genesis x, 10, the Persabora of classical geographers, and the Anbar of Arabic historians, is of the first importance. It is easy to trace the lines of the old palaces or temples, not through any stone walls, but by the depression of the courts, now cultivated wheat-fields. In various places the brick masonry of buildings and walls could easily be traced." At Palmyra, which the expedition visited on the return home, nearly a hundred views were taken, and squeezes of most of the inscriptions, including the immense stone recently discovered, containing the law of tolls for caravans.



INSCRIPTION FROM COPAN.

An immense field for exploration and the recovery of historical material relating to the extremely ancient empires of Babylonia was observed, of which only Birs Nimrûd, Abu-Habba, and Tello have been explored with any thoroughness, while most of the sites, including two of the great cities, have not been touched. Dr. Ward also recommends the careful exploration of the courses of the old chief canals, which were so large as to bear the name of rivers.

Assyrian and Babylonian Antiquities in the British Museum.—The Assyrian and Babylonian antiquities in the British Museum, including those which were discovered by S. H. Layard at Nimrûd in 1847-'51, the collections obtained by George Smith and Mr. Rassam, and the objects presented by the proprietors of the London "Daily Telegraph," have been arranged in a separate gallery. The collection of inscribed terra-cotta tablets, representing Babylonian literature, illustrates a period more than 2,000 years long, extending from b. c. 2500 until less than a century before the Christian era. An important section of the collection is that which contains the monuments and inscriptions from Chaldea, the greater part of which are the results of Mr. Rassam's explorations at Abu-Habba, the ancient Sippara, and in the Birs Nimrûd, the ancient Borsippa. In this section many branches of literature are represented: history, by portions of a canon of kings with dynastic summations and fragments of narrative; poetry, by hymns and legendary tales; mythology, by fragments of the deluge tablet from the library of the Temple of Nebo at Borsippa; astrology and astronomy, by calendars, eclipse tablets, and omen tablets; and mathematics, by tables of square and cube roots, and abstruse calculations of a cabalistic character. The literature of every-day life is illustrated by a series of commercial tablets and memoranda, ranging from the reign of Eriaku, the Arioch of Genesis xiv, the contemporary of Abram, till b. c. 93, and letters, notes, and copy-books of school-boys and scribe students. The section exhibits, in a striking manner, the popular and spontaneous nature of the Chaldean literature, in contrast with the exotic and formal character of Assyrian literature, which was largely indebted to royal patronage for its maintenance. Evidences also appear in it of the care with which ancient documents were preserved, and the fidelity with which they were restored or copied if there was danger of their falling into decay or being lost. The existence of bilingual populations is indicated by the presence of tablets, some of which are written in Semitic Babylonian, and others in the agglutinative Accadian or Sumerian. A bi-lingual royal inscription of Khammorabi, in which the two versions are placed side by side, shows that these elements were co-existent. In the tablets of the Egibi firm of bankers at Babylon, which cover several centuries, the occurrence

of Assyrian, Persian, Greek, Hebrew, and Egyptian names, besides Babylonian names, shows the extent and variety of the intercourse which this people had with other nations.

Persia. The Palaces of Darius and Artaxerxes.

M. Dieulafoy, with a French commission, has been conducting excavations in Susiana. The principal object of the excavations in 1885 was the palace of Artaxerxes Mnemon. The aim of the work done in 1886 was to lay open the foundations of a palace beneath the other, which had been built by Darius, and had been destroyed by fire before the time of Artaxerxes. In the midst of these foundations was found, in perfect preservation, a frieze in bas-relief, enameled in colors, 11·80 metres in length and 3·60 metres in height, representing twelve soldiers of the royal guard in the garb and bearing the arms assigned by Herodotus to the ten thousand immortals. The figures are 1·41 metres in height, and are shown in profile. Their faces, feet, and hands are black. The examination of the skeletons found on the site makes it appear that the early population of Susiana must have belonged to a black race—not negroid, but resembling the present inhabitants of the coast of the Red Sea. In the same neighborhood were found fragments of sculptures on baked bricks. The subjects are winged lions and bulls, taken from the mythical fauna of Chaldea, but treated with remarkable freedom of style. In the excavations on the site of Apadana, the hall of the throne has been cleared throughout and its plan accurately determined; and it was possible to reconstruct a magnificent two-headed capital, supported upon four rows of volutes. Its size was 4 mm. 10 by 5·24 mm., and it weighed more than 30,000 kilogrammes. It has been removed to Paris, together with a part of the sculptured base. Diggings conducted in the neighborhood of the royal tumulus brought to light a small building of the Achæmenid period which M. Dieulafoy considers a temple. If so, it must be of later date than the time of Darius and Xerxes, for the Persians had no temples then. Among the principal objects discovered were funeral urns, molded around the bodies of the dead and baked with them, which were found by hundreds, deposited in galleries excavated in the thickness of the walls, bronze coins, jewelry of copper, utensils of earthenware and metal, and lachrymal vessels of glass, mingled with ashes, which were likewise found in the galleries. The Museum of the Louvre has acquired a large number of enameled vases, arms, lamps, statuettes, a new collection of cuneiform tablets, and nearly three hundred engraved stones, including ninety-seven fine cylinders. The commission also brought back a plan of the tumulus and environs of Susa, many photographs and rubbings, and collections in natural history and geology.

Palestine. Remains of an Aqueduct at Jerusalem.

—In studying a section of an aqueduct which was discovered in 1880, in connection with a

Hebrew inscription ascribed to the age of Hezekia, in the tunnel connecting the Virgin's well with the pool of Siloam, Sir Charles Wilson formed an opinion that there might have been another and older aqueduct connecting the two fountains. Such an aqueduct has been discovered by Herr Schick, at three points where he sunk shafts. It is roughly hewn in the solid rock and covered with slabs, where it is not filled with mud and rubbish. No inscription has yet been found upon it. It is supposed to be as old as the time of Solomon.

Egypt. Egypt Exploration Fund.—At a special general meeting of the supporters of the Egypt Exploration Fund, held in London July 6, the chairman laid on the table the first part of the society's forthcoming publication on the excavations and researches at Naukratis, and pointed out that of the five great temples mentioned by the Greek literary authorities four had now been discovered, two in the present season and two in Mr. Petrie's previous explorations. This year the cemetery had also been found, but the part of it that could be excavated contained only the graves of a later period, whereas the best time of Naukratis was the sixth century b. c. These graves contained coffins of tile and of wood, the latter decorated with terra-cotta ornaments, gorgoneia, etc., many of which had been recovered. The burials were always after the Greek customs, and no traces of embalming had been found. In the *temenos*, or shrine of the Dioscuri, the plan of a temple built of unbaked brick, faced with plaster, had been recovered. In front of it were pillars of the same materials. The Temple of Aphrodite consisted only of mud-brick walls, inclosing one, or, in the earlier temple, two chambers. In front of it was a great altar, built of ashes, held together with a mud-brick casing. The yard of the temple was covered with a layer of fragments which had yielded a great number of vases and statuettes, more or less perfect. These were all of an early period, and many were inscribed in the characters of the sixth century b. c. The *temenos* of the Samian Hera had also been found, but had not been rich in results. Some smaller articles had been found in the town, including a beautiful portrait-head of the period of Berenike II, in blue porcelain. It did not seem advisable to continue the work at once, as no result might ensue, but rather to watch the site till fresh remains were uncovered by the Arabs. Up to the present moment much had been gained. A most valuable series of inscriptions served, not only to throw light on the early history of the Greek alphabet, but also to decide the age of many classes of vases and sculptures whose date had previously been matter of conjecture. By ascertaining the real nature and importance of the colony of Naukratis, its position in history was established. It was merely a trading emporium, but owing to the surroundings that prevented its growing in size or prosperity, its

art and handicrafts were stimulated by emulation. Its influence on Greece in the sixth century must have been of great importance.

Excavations at Tell Nebesh.—The excavations of the Egypt Exploration Fund were resumed in the Delta at the beginning of the season of 1885-'86, under the direction of Mr. W. M. Flinders Petrie, Mr. F. Llewellen Griffith, and Mr. Ernest A. Gardner. Leaving Mr. Gardner to pursue the investigations at Naukratis, Mr. Petrie and Mr. Griffith proceeded to make excavations at a new site in the neighborhood of Tanis. The mound at which they worked is called variously, Tell Nebesheh, after the name of the village, Tell Bedawi, or the mound of the Bedouin, and Tell Farun, or the mound of the Pharaoh. It is the site of a vast and very ancient cemetery, the level of which has been raised from age to age by successive strata of interments. Besides the cemetery, the mound contains the remains of two ancient towns and the site of a temple. The temple occupies the eastern extremity of the mound, and was formerly surrounded by a sacred inclosure about 600 feet square. The line of the walls can still be traced. Near the northeast corner stands the remains of a monolithic shrine in red granite, fourteen feet high by nearly eight feet wide. At the northern end of the mound is a broken sphinx in black granite, which appears to belong to the Hyksos period. The cemetery is very unlike the cemeteries of Memphis, Thebes, and Abydos, and is described by Mr. Petrie as consisting of "an immense number of small chambers, or groups of chambers, placed isolated and irregularly all over a sandy plain. These were built of unbaked brick, and roofed with barrel-vaulting. Some were larger, and cased or lined, if subterranean, with limestone. In later times—in the sixth century b. c., and after—large blocks of about a dozen chambers became frequent. These tombs have nearly all been pilaged in early times, so that in a hundred only half a dozen bodies have been found; and not only did the chambers fall to decay, but they were leveled and others built on them, so that three or four successive occupations of the same ground may be traced." In some of the vaults quantities of bones were found indiscriminately piled. Among other monuments and relics are a black granite altar of the reign of Amenemhat II of the twelfth dynasty, much sealed by the action of the salt in the soil, bearing an erased inscription of a "royal friend, seal-bearer, and chancellor"; two thrones of life-size royal statues of the twelfth dynasty, much mutilated; a limestone statue dedicated apparently to Harpocrates; a fragment of a statue of Ptah in black granite, highly polished, bearing an inscription of Rameses II; several sculptured blocks of some building earlier than the temple; and a headless sphinx, in black granite, supposed to be originally of the twelfth dynasty, on which the cartouches of successive kings have been in

turn inscribed and erased. Tombs of the twentieth dynasty have yielded great numbers of small articles. Two sets of foundation deposits were found in the corners of an unimportant building in the cemetery, which, in connection with the foundation deposits found in the previous year at the Ptolemaic building in Naukratis, prove the prevalence of the custom of making such deposits.

The Royal Palace at Tahpanhes.—Mr. Petrie spent the last two months of the season of work on the hitherto unexamined site of Tell Defenneh, the Tahpanhes of the Bible (Taphne in the Septuagint) and the Pelusiac Daphne of the Greeks. The site has considerable intrinsic importance as being that of the earliest Greek town in Egypt, and as being a site of the twenty-sixth dynasty, wholly free from later remains. The "Pelusiac Daphne" of Herodotus was one of the important parts in the district of Stratopeda, in which Psammeticus I settled the Carian and Ionian mercenaries, by

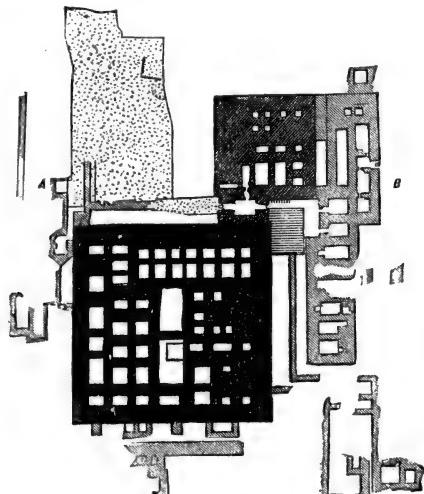
tion, by a large stela recording the garrison stationed there, and by the arms and armor found in the camp around it. It was proved to have been constructed by Psammeticus by the foundation-deposits, consisting of a variety of articles, with plaques of metal, stone, and porcelain under each corner, bearing the name of that king. Other discoveries indicated that it was also used as a small palace or hunting-box. The whole is inclosed within an immense walled area, 3,000 feet long by 1,000



SECTION OF RUINS OF PALACE OF TAH PANHES.

feet broad, having a north gate opening upon the Pelusiac Canal, and a south gate toward the ancient military route between Egypt and Syria. The great boundary-wall was 50 feet thick. Among the objects found within the building were "much fine pottery of the twenty-sixth dynasty; bronze and iron work; delicately made scale armor of iron, six laps thick, and yet not over-heavy; invaluable plaster jar-sealings, with royal names which date the finds; and, perhaps most important, baskets, sacksful of the finest painted Greek vases, all thrown away, broken up, in two or three rubbish-rooms, and all dated, more nearly perhaps than any other find of vases, by jar-lids of Amasis, who removed the Greeks and stopped their trade early in his reign. We know for certain that this great layer must belong to within a few years after 570 b. c., but all the most striking pieces are of a style and coloring as yet wholly unknown in the British Museum collection, and, stranger still, quite different from the characteristic Naukratian pottery. Only two bits of the commonest types of Naukratis were found in the whole work. Naukratis and Defenneh did not bring their pottery from a common source, nor from any sources as yet known to us. The inference is that each style is that of the place in which we find it, and is not imported at all."

Outside of the buildings of the Kasr, Mr. Petrie found an area of continuous brick-work resting on sand, about 100 feet by 60 feet in dimensions, facing the entrance to the later buildings at the east corner. It has no traces of chambers, and seems to have been an open-air place for out-door purposes, and "such as even poor villagers make before their houses, leveling a smooth, hard bed of mud, which they keep clean swept." The existence of this pavement and its exact location threw a remarkably clear light upon a passage in Jeremiah xlivi, where the prophet, having described the removal of Johanan and the captains of the forces, "men, and women, and children, and the king's daughters," etc., to Tahpanhes, relates, as it is translated in the Revised Version: "Then came the word of the Lord to Jeremiah in Tahpanhes, saying, Take great



PLAN OF THE PALACE OF TAH PANHES.

whose aid he had gained his throne, and was one of the three great fortresses which he established as a defense against the Arabians and Syrians. The city also played an important part in one of the transactions mentioned by the prophet Jeremiah (chs. xxxvii-xlvii). The mounds consist of three groups, situated from a quarter of a mile to a mile apart, while the intermediate ground is covered with potsherds, stone chips, and the remains of brick foundations. The largest of the mounds is composed of the blackened ruins of a huge pile of brick buildings, visible from a great distance across the plain, and which the Arabs told Mr. Petrie was called "El Kasr el Bin el Yahudi," or "The Castle of the Jew's Daughter." This building, which formed the chief object of attention, was identified as a fort by its construc-

stones in thine hand, and hide them in the mortar of the brick-work which is at the entry of Pharaoh's house in Tahpanhes, in the sight of the men of Judah; and say unto them, Thus saith the Lord of hosts, the God of Israel: Behold, I will send and take Nebuchadnezzar the king of Babylon, my servant, and will set his throne upon these stones that I have hid; and he shall spread his royal pavilion over them. And he shall come, and shall smite the land of Egypt" (verses 8-11). The Revised Version gives as an alternative reading for "brick-work," "the pavement or square," in the light of which Mr. Petrie remarks that the area he discovered would be exactly the place where Nebuchadnezzar would spread his royal pavilion. Search was made for the stones mentioned, but identification of them was found to be impossible, for the rains have washed away the area and denuded the surface, so that, although it is two or three feet thick near the palace, it is reduced in greater part to a few inches, and is altogether gone at the northwest corner. No definite record has been found of Nebuchadnezzar's having fulfilled Jeremiah's prediction, that he would spread his pavilion on that spot. Egyptian inscriptions say that he came, and was defeated by Apries; Babylonian inscriptions say that he conquered. Three clay cylinders of Nebuchadnezzar, such as he was accustomed to use for marking the places where he planted his standard and throne, are preserved in the museum at Boolak. There is said to be reason to believe that they were found in this place a few years ago, although the Arabs who sold them to the museum said that they came from Tussin, in the isthmus. Within the Ksar were found the kitchen offices, with various articles and conveniences for kitchen use, including the sink, which, according to Mr. Petrie's description, "is formed of a large jar with the bottom knocked out, and filled with broken potsherds placed on edge. The water ran through this, and thence into more broken pots below, placed one in another, all bottomless, going down to the clean sand some four or five feet below." Several other drain-sinks of similar construction were found. Beyond the camp-wall were the remains of a wide settlement, strewed with fragments of pottery and pieces of jewelry. About 1,600 weights were collected, besides which some 800 weights had previously been found at Naukratis.

M. Maspero's Report of his Work.—M. Maspero, giving a report to the "Académie des Inscriptions" of the year's archaeological work in Egypt, spoke of the success of the new plan adopted by the authorities of the Boolak Museum of allowing to the finders the benefit of half of all that they discover. The effect of the measure is to interest the people in the search for antiquities and to secure reports of everything of interest that is found. A rock has been discovered near Akmin which contains some ten or twelve thousand inscriptions,

of hunters of all races—Egyptian, Phœnician-Greek, Roman, and Arab, who were accustomed to resort to that region from the sixth dynasty down to the present time. The excavations at Luxor have been continued, in the face of difficulties in effecting the expropriation of the building that encumbers the site of the temple. The removal of the sand around the sphinx has been undertaken. Although nothing was to be seen of this structure except the head and neck, the figures of it on the old Egyptian monuments show the entire body down to the paws, and a large square plinth beneath, covered with ornaments. It has been generally supposed that the sphinx was hewn out of a large isolated rock which overlooked the plain; but M. Maspero has found it to be of a yet more stupendous character. It has been shown to occupy the center of an amphitheatre, forming a kind of rocky basin, the upper rim of which is about on a level with the head of the figure. The walls of this amphitheatre wherever visible are cut by the hand of man. It seems probable, therefore, that in the beginning there was a uniform surface of rock in which an artificial valley has been excavated, so as to leave in the middle a block out of which the sphinx was finally hewn. During the winter's work of 1885-'86, the sand around the sphinx was lowered by about thirty metres.

The Mummies of Rameses II and III, Sekenen-ra and Seti I.—On the 1st day of June, M. Maspero, Director-General of the Excavations and Antiquities of Egypt, by order and in the presence of the Khedive, assisted by a number of Egyptian and European officers, unbandaged the mummy of Rameses II, which had been found in 1884, together with mummies of other kings, princes, and princesses of ancient Egypt, at Dayr-el-Bahari, near Thebes. The identity of the mummy was attested by the official entries bearing dates of the reigns of the high priests under whom they were made, written in black ink upon the lid of the wooden mummy-case, and by a further entry written upon the outer winding-sheet of the mummy over the region of the breast. After removing two or three layers of bandages there was found a piece of fine linen reaching from the head to the feet, on which was drawn a figure representing the goddess Nut, one metre in length, in red and white, as prescribed in the ritual. "The profile of the goddess," says the official report of the process, "is unmistakably designed after the pure and delicate profile of Seti I, as he is known to us in the bas-relief sculptures of Thebes and Abydos. Under this amulet there was found another bandage; then a layer of pieces of linen folded in squares and spotted with the bituminous matter used by the embalmers. This last covering removed, Rameses II appeared. The head is long, and small in proportion to the body. The top of the skull is quite bare. On the temples there are a few sparse hairs, but at the poll the hair is quite thick, forming smooth, straight

locks about five centimetres in length. White at the time of death, they have been dyed a light yellow by the spices used in embalmment. The forehead is low and narrow; the brow-ridge prominent; the eyebrows are thick and white; the eyes are small and close together; the nose is long, thin, hooked like the nose of the Bourbons, and slightly crushed at the tip by the pressure of the bandages. The temples are sunken; the cheek-bones very prominent; the ears round, standing far out from the head, and pierced like those of a woman for the wearing of earrings. The jaw-bone is massive and strong; the chin very prominent; the mouth small but thick-lipped,

the living king. The expression is unintellectual, perhaps slightly animal; but, even under the somewhat grotesque disguise of mummification, there is plainly to be seen an air of sovereign majesty, of resolve, and of pride. The rest of the body is as well preserved as the head; but, in consequence of the reduction of the tissues, its external aspect is less life-like. The neck is no thicker than the vertebral column. The chest is broad; the shoulders are square; the arms are crossed upon the breast; the hands are small and dyed with henna; and the wound in the left side, through which the embalmers extracted the viscera, is large and open. The legs and thighs are fleshless; the feet are long, slender, somewhat flat-soled, and dyed, like the hands, with henna. The corpse is that of an old man, but of a vigorous and robust old man. We know, indeed, that Rameses II reigned for sixty-seven years, and that he must have been nearly one hundred years old when he died."

Maspero next proceeded to unbandage a mummy which had been found, together with another mummy, in a very dirty and tattered condition, in a sarcophagus that bore the name of Nofretari, the wife of King Ahmes I, of the eighteenth dynasty. The latter mummy proved, on beginning to unroll it, to be much decayed and very offensive, but was ascertained to be the corpse of a woman of mature age and middle height, of the white race. There were no traces of writing on the bandages, but a strip of linen discovered in the sarcophagus was decorated with a scene of adoration of King Rameses III. The other mummy bore no outward inscription, but had on the head a linen band covered with mystical figures. The orange-covered winding-sheet of this one being removed, there appeared beneath it a white sheet bearing an inscription in four lines: "The year XIII, the second month of Shomon, the 28th day, the first Prophet of Amen, Pianki, the scribe of the temple Zoseron-Khonsu, and the scribe of the necropolis Boutchamon, proceeded to restore the defunct king Ra-user-ma Mer-Amen, and to establish him for Eternity." The mummy which had hitherto been taken for Nofretari was, then, the mummy of Rameses III; and the anonymous mummy was, without doubt, that of Nofretari. As the unbandaging proceeded, some of the wrappings appeared inscribed with legends and groups in black ink, some of them in the form of offerings. Two pectoral ornaments were laid in the folds of the wrappers, one of gilt wood, bearing the group of Isis and Nephthys adoring the sun, and the other, in pure gold, inscribed with the name of Rameses III. The face of the king was coated with a compact mass of bitumen, which hid the features, and had to be removed. On re-examining the bandages, inscriptions of the high-priest, Pinotem I, were found on two of them. The pitch having been removed from the face, the features were found to be less well preserved than



THE MUMMY OF RAMESES II.

and full of some kind of black paste. The paste being partly cut away with the scissors, disclosed some much-worn and very brittle teeth, which, moreover, are white and well-preserved. The mustache and beard are thin. They seem to have been kept shaved during life, but were probably allowed to grow during the king's last illness; or they may have grown after death. The hairs are white, like those of the head and eyebrows, but are harsh and bristly, and from two to three millimetres in length. The skin is of earthy brown splotched with black. Finally, it may be said the face of the mummy gives a fair idea of the face of

those of Rameses II, "yet they can to a certain extent be identified with those of the portraits of the conqueror. The head and face are closely shaved, and show no traces of hair or beard. The forehead, without being lofty or very broad, is better proportioned and more intellectual than that of Rameses II. The brow-ridge is less prominent, the cheek-bones are less high, the nose is less hooked, the chin and jaw are less heavy. The eyes appear to be larger, but it is not possible to be certain of this last point, the eyelids having been removed, and the cavities of the eyeballs having been stuffed with rags. The ears are closer to the head than those of Rameses II, and they are pierced in like manner for the reception of ear-rings. The mouth is disproportionately wide, and the thin lips reveal a row of white and well-placed teeth. The first molar on the right side appears to have been broken, or to have been worn away earlier than the rest. In short, Rameses III is like a smaller imitation of Rameses II. The physiognomy is more delicate, and, above all, more intelligent, but the height of the body is less, the shoulders are less wide, and the strength of the man was inferior." Rameses III was also a warrior, but his wars were not aggressive; they were waged at home, in defense of the kingdom. The two mummies, replaced in their glass cases, will henceforth be exhibited in the museum at Boolak.

The communication of the report of the unbandaging of these mummies, June 3, was M. Maspero's last official act. He resigned his office on the 5th of June, for reasons relating to the health of Madame Maspero. He was succeeded in the superintendency of excavations and archæology by M. Eugène Grébaut.

On the 9th of June, M. Eugène Grébaut, assisted by M. Maspero and the officers of the Museum of Boolak, unbandaged the mummy of Sekenenra Ta-aken, the Theban king of the seventeenth dynasty, under whom the war was waged against the Shepherd kings, which resulted in their expulsion. This king is one of the heroes of a very ancient legendary romance written on papyrus in the hieratic character of the time of the nineteenth dynasty, of which a large fragment is in the British Museum. The identity of the mummy was established by means of the inscription, written in red ink and retouched with the brush, upon the cover of the mummy-case. Upon exposing the body, the head was found thrown back, and lying low to the left. A large wound running across the right temple a little above the frontal ridge was partly concealed by long and scanty locks of hair. The lips were wide open, and contracted into a circle, from which the front teeth, gums, and tongue protruded, the latter being held by the teeth, and partly bitten through. The features, forcibly distorted, wore a very evident expression of acute suffering. A more minute examination revealed the position of two more wounds. One,

apparently inflicted by a mace or hatchet, had cloven the left cheek and broken the lower jaw, the side teeth being laid bare. The other, hidden by the hair, had laid open the top of the head a little above the wound on the left brow. A downward hatchet-stroke had here split off an enormous splinter of skull, leaving a long cleft, through which some portion of the brain must have escaped. The king had evidently received these wounds, and died from them, in battle—a fact which was not known before, although his leadership in the war against the "Hyksos" was matter of record. Some irregularities which had been observed in the embalmment and the disordered condition of parts of the mummy are explained by this fact, and in the light of the probability that decomposition had begun before the body came into the hands of the embalmers.

The mummy of Seti I, second king of the nineteenth dynasty, and father of Rameses II, its identity being attested by the official priestly entries on the lid of the mummy-case, was unbandaged on the same day. At about midway of the total thickness of the wrappings occurred two lines of hieratic inscription in black ink, stating that "in the year nine, the second month of Pert (the season of seed-time), the sixteenth day, was the day of reclotting of the King Menma-ra (Seti I), to whom be life and health and strength." Another inscription, written on one of the smaller bandages, gave the date of the latest restoration of the king's funereal trappings. The body, says M. Maspero, in his account of the unbandaging "presents much the same appearance as that of Rameses II. It is long, fleshless, of a yellow-black color, and has the arms crossed on the breast. The head was covered with a mask of fine linen, blackened with bitumen," on the removal of which with the scissors was brought to view "the most beautiful mummy-head ever seen within the walls of the museum. The sculptors of Thebes and Abydos did not flatter the Pharaoh when they gave him that delicate, sweet, and smiling profile which is the admiration of travelers. After the lapse of thirty-two centuries, the mummy retains the same expression which characterized the features of the living man. Most striking of all, when compared with the mummy of Rameses II, is the astonishing resemblance between the father and son. The nose, mouth, chin, in short, all the features, are the same; but in the father they are more refined, more intelligent, more spiritual, than when reproduced in the son. Seti I is, as it were, the idealized type of Rameses II. He must have died at an advanced age. The head is shaved, the eyebrows are white, the condition of the body points to considerably more than threescore years of life, thus confirming the opinion of the learned, who have attributed a long reign to this king. The body is healthy and vigorous, notwithstanding the knotty state of the fingers, which bear evident traces of gout."

The Mummy of an Anonymous Prince.—In the more particular examination of the royal mummies found at Dayr-el-Bahari there was discovered the body of a young man of between twenty-five and thirty years of age, to which no inscription of any kind was attached. Instead of being embalmed in the usual way, the body had merely been dried by some skillful process, without removing any of the internal organs, and had been covered with some fatty and caustic mixture; and the whole attitude of the corpse and the expression of its face went to indicate that the unknown person had died in extreme agony. M. Maspero thought at first that the case might have been one of the embalmment of a living man, but medical men were of the opinion that a case of poisoning was indicated. Miss Amelia B. Edwards has suggested the possibility of a connection between this case and the great Palace-conspiracy directed against the life of Rameses III, of which an incomplete record is given in what is called the Judiciary Papyrus of Turin. Among the forty high officials and the ladies implicated in that conspiracy, were one Taia, supposed to be the queen, and a young man, her son, described as Pentaura, who is also called by another name. This young man, supposed to be a prince of the royal blood, suffered death in expiation of his crime; and M. Le Page Renouf has pointed out that the expression in the Turin papyrus describing his death as well as that of thirteen others, signifies that he died self-slain.

An Ancient Egyptian Romance.—M. Maspero, while excavating the tomb of one Sennotmou near Thebes, discovered a piece of inscribed limestone containing a complete version of the story of which the Berlin papyrus contains a part, and a fragment in the British Museum the last lines, which has been translated by him as "Les Aventures de Sinouit," and by the late C. W. Goodwin into English as the "Story of Saneha." The tale is supposed to be older by many centuries than the time of Moses. Of the story in the Berlin papyrus, the beginning is wanting; and this is supplied in the present copy. In the former copy, the hero, Saneha, appears flying from the wrath of his sovereign, and taking refuge with the Sati, or Asiatic tribes northeast of the Gulf of Suez, but nothing is given to show the nature of the offense he had committed. The newly discovered copy informs us that he had accidentally overheard a secret of state. According to M. Maspero, the purpose for which the stone containing the story was buried in the tomb, was to give the double of the deceased a source of entertainment in perusing this, one of the favorite stories of classic Egyptian literature. By breaking the stone, it was slain, and its double passed into the other world, to keep company with the double of the deceased. The breaking was not done without causing some damage to the text. A few of the words are chipped off, but the lacunæ could be filled

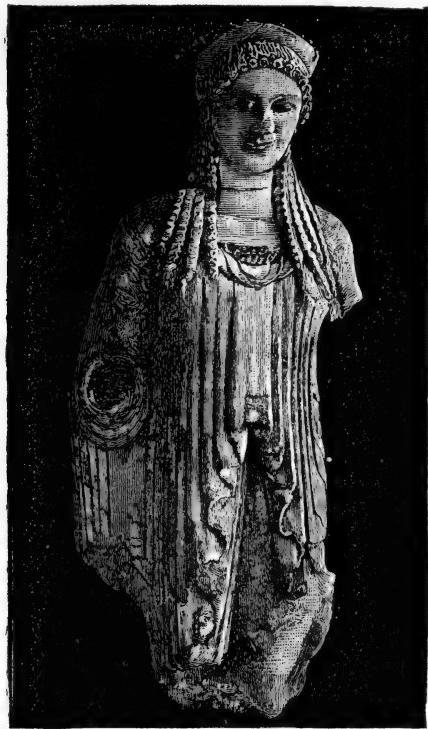
without difficulty. An historical point of some importance is established in the opening lines, in which the date of the death of Amenemhat I, in whose dynasty (the twelfth) the adventure is supposed to have happened, is given as "in the year thirty, the seventh day, the second month of Sha-t." Besides this story, and the bodies—which were those of an officer of the reign of Rameses IV and his family—the tomb contained a complete set of funeral furniture; the measuring implements of the deceased, two funeral-sledges, chests filled with food, and pottery of various kinds.

Miscellaneous Explorations in Egypt.—Gen. Grenfell, who is in command of the British frontier force at Assonan, has discovered on the western bank of the Nile a series of fine rock-cut tombs ranged, like the grottoes of Beni-Hassan, along an artificial terrace, more than half-way up the face of the cliff. The oldest tomb dates from the sixth dynasty, and others are of the twelfth dynasty. All are richly painted in the manner of the early tombs of Lower Egypt. The largest, which is of the sixth dynasty, measures 140 feet by 40 feet, and contains eighteen round and fourteen square columns. Another tomb, which is of the twelfth dynasty, and consisted of two halls supported on square columns and connected by a long corridor, contained some remarkable funerary statues, or Osiride figures, in baked clay, and sixty stelæ. These tombs are supposed to form a part of the hitherto undiscovered necropolis of the ancient frontier city of Abu or Elephantine. The tomb of the sixth dynasty was approached from the river-side by a flight of rock-cut steps, of which the remains still exist.

Greece. Archaeological Division of the Kingdom.—The kingdom of Greece has been divided by royal decree into eleven archaeological districts, for each of which an inspector of antiquities has been appointed, with authority. The remains discovered which have a local interest are to be placed in the collections of the district, while those having artistic value, or which may be important for the history of art, will be transferred to the Central Museum at Athens.

Discovery of Archaic Statues at Athens.—The excavators of the Greek Archaeological Society, working under the direction of Prof. Kavvadias, while digging to the southeast of the Erechtheum, came, at the depth of from seven to ten feet below the surface of the soil, upon six statues of Parian marble and a number of fragments. The statues had heads, but were without feet, and represent female figures of somewhat over life-size, clad in rich garments, with a broad diadem, or *stephane*, surrounding the hair. They differ from one another, but still may all represent the same goddess. The dresses are represented as done in very careful folds or plaits, which may be considered conventional, and indicating an archaic period of art, but which Dr. Charles Waldstein suggests may portray an actual style of dress-

ing of the age when they were made. They are attributed to the period before Phidias, and are regarded by Dr. Waldstein as marking the transition from the period of working in wood to that of working in marble. In support of his supposition, Dr. Waldstein cites peculiarities in the modeling and construction of the statues, which appear to have been borrowed from the methods of working in wood. Several of the statues had eyes of glass. The fringe of the tunic and cloak is adorned with parallel painted lines, and among these are painted small crosses and other ornaments resembling those of antique vases. The



ARCHAIC STATUE FOUND IN ATHENS.

colors have mostly preserved their primitive luster. Dr. Waldstein fixes the date of the statues at between 510 and 470 B. C. Among the other fragments of sculpture and architecture discovered in these excavations are inscribed stones, one of which bears the name of Evenor, and another, a pedestal, that of Antenor. The latter monument excites interest, because Antenor was the name of the artist who executed the statues decreed by the Athenians to the tyrannicides Harmodius and Aristogiton, which were taken to Persia by Xerxes, but were afterward restored to the Athenians by Alexander or Antiochus.

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Antiquity of the Palace of Tiryns.—Mr. W. J. Stillman and Mr. F. C. Penrose have called in question the extreme antiquity assigned by Dr. Schliemann to the ruins he has excavated at Tiryns. They cite in justification of their doubts the occurrence of small stones, of marks of the saw and chisel and the tubular metallic drill, and of burned bricks in parts of the walls of the so-called Palace of Tiryns, as giving to the work there a fundamental difference in character from that of the undoubted Pelasgic architecture. Their views were fully presented in papers by them, which were read at the meeting of the Hellenic Society on the 2d of July, and were replied to in detail by Dr. Schliemann and Dr. Dörpfeldt. Dr. Schliemann maintained that his critics had failed to find some of the more convincing evidences of antiquity in the plans of the structure, for earth and sand had been heaped up in the palace by order of the Greek Archæological Society, to preserve the painted floors and thresholds from injury. They had also committed the error of mistaking the prehistoric walls of the palace for the late Byzantine walls of lime and bricks, whereas, in reality, they consist of quarry-stones loaded with clay mortar. "But in the great conflagration which destroyed the palace the stones were calcined, wherever beams of timber fed the flames, and thus the traveler thinks now he sees lime everywhere, and particularly so in the glare of the Oriental sun." Assuming that an ancient ruin may be older, but that it can not possibly be later, than the latest objects of human industry which we find within it, "let us see," Dr. Schliemann continued, "what we find in the prehistoric palace of Tiryns. We find the walls, both on the outside and on the inside, wainscoted first with a layer of clay and then with a still thicker layer of lime, which is smoothed and polished, and covered with paintings of the most archaic patterns that have ever been found. We find among them the pattern of the marvelous thalemos-ceiling of Orchomenos. Similar wainscoted and painted walls I found at Mycenæ. They were also found in ancient Phœnician buildings in Syria, and you may see them to the present day in the prehistoric city which has been discovered beneath three layers of pumice-stone and volcanic ashes on the island of Thera, which is more than 2,000 years older than the beginning of the Byzantine Empire, in 395 B. C. With regard to other objects of human industry, whoever takes the trouble to examine the illustrations in our book on Tiryns will see that, generally speaking, they are of the same shape, fabric, and manufacture as those of Mycenæ, which all archæologists unanimously attribute to 1200-1400 B. C., with the exception of the terra-cotta idols, most of which have much more ancient types, with the exception also of the arrow-heads and knives of obsidian, which for rudeness can only be compared to those I found in the prehistoric tumulus at Marathon, errone-

ously called the tomb of the 392 Athenians who fell in the battle of Marathon (490 b. c.), or to those found in the cave-dwellings in the Dordogne in France, which were inhabited at the time of the mammoth." Dr. Schliemann also insisted that the walls of quarry-stones bonded with clay were similar to walls which were "found by many hundreds in all the five prehistoric cities of Troy, in the treasures of Mycene, in the thalamos of Orchomenos, in Samos, in Cephalonia, in Eleusis, in the Acropolis of Athens, beneath the edifices destroyed by the Persians, and last, not least, in the prehistoric city in Thera." A paper by Dr. Dörpfeld, which was read, pointed out that all the indications referred to and insisted on by the critics as proving that the remains at Tiryns and Mycenæ were of a later date than that assigned to them by Dr. Schliemann and himself, such as the tools, and particularly the drill which appeared to have been used, and the mortar and other materials for the building of the walls, were equally apparent in the remains at Troy and in Egypt, which were admittedly of as high an antiquity as he claimed for Tiryns and Mycenæ.

The Temple of Amphiaraus at Oropus.—The Archæological Society of Athens has excavated the site of the Temple of Amphiaraus, one of the seven heroes who marched against Thebes, and was afterward worshiped as a god, at the ancient Oropus. The spot was brought into notice in 1856, by the finding of some squared stones with inscriptions mentioning special games, Ἀμφιαράū, which were held in honor of the god. Systematic excavations were begun in 1884. Of the walls of the temple, only the foundations remain. A fragment of a colossal piece of sculpture of white marble appears to be a piece of the statue of Amphiaraus mentioned by Pausanias. Near the remains of the great altar were what seemed to have been structures for the accommodation of spectators of the sacrifices. In a hall, the ruins of which were laid bare, were traced lines of marble seats, and a row of three-cornered marble pedestals for the reception of memorials was observed. A sculptured relief representing a ram is supposed to bear reference to the practice, described by Pausanias, of sacrificing a ram to Amphiaraus before seeking in dreams the answer of the oracle. One of the inscriptions, much injured, contained an inventory of the plate of the temple. Another contained a rescript of the consuls, M. Terentius Varro Lucullus and C. Cassius Longinus (73 b. c.), communicating to the Oropians the *senatus consultum* regarding the dispute between their city and the representatives of the Roman state. Another inscription contains the rules of the Amphiarium. In it are set down the hours at which the priests were bound to be within the precincts of the temple, the punishments for the misdeeds of the Demotæ and of strangers in the temple precincts, the penances of those who consulted the oracle, and the de-

tails of the ritual of the sacrifices, and of the sleeping in the temple.

The Great Aqueduct of Samos.—Mr. J. Theodore Bent has examined the aqueduct of Samos, which is described by Herodotus, and ascribed by him to Eupalinos the Megarian as its architect, the southern entrance to which was accidentally discovered in 1883. After descending nine steps on to the ground which rises directly behind the old town of Samos, the explorer passes through a narrow-built passage, covered at the top by an arch formed by two stones two feet in length, resting one upon the other, for 41 feet 3 inches into a wider passage chiseled in the rock, with a side-chamber 10 feet in height. This is connected by a door and window with a shorter passage, which appears to be of later construction. A round room is next entered, having recesses, as if for tombs, and then the aqueduct itself. Along the side of the channel for the water runs a ledge for walking, at an average height of six feet from the roof. The channel itself, from the roof to the base, is 33 feet 10 inches deep and 2 feet 7 inches wide, while the whole, including the channel and the passage, is 6 feet 11 inches, all cut in the hard rock. The point where the two sets of workmen met is marked by an error of 12 feet in the adjustment of the galleries, which has been rectified by making the roof at that spot very lofty; and then the channel takes a bend almost at right angles, and proceeds toward the northern opening. The northern entrance is similar to the southern, and consists of a series of passages reaching to the principal channel. From the source to the mountain, a distance of about half a mile, the water was conducted in pipes, many of which are still to be seen, one foot eleven inches long, overlapping, and each containing a hole for the escape of water if the pressure should be too great. The aqueduct is pronounced "a remarkable testimony to the enterprise of the ancients and their engineering skill."

Athenian Mosaics.—The remains of a bath in the Palace of Hadrian at Athens display handsome semicircular pavements in mosaics of beautiful geometrical designs, and colored in black, blue, red, yellow, and white. Patterns of circles intersecting so as to form squares with curved sides, and of non-intersecting circles inclosing designs of stars, leaves, etc., frequently recur. Each of the pavements is bounded on the exterior and interior sides by handsome leaf borders.

Archaic Inscriptions in Lemnos.—Two inscriptions observed by MM. Cousin and Durrbach, of the French school at Athens, on a rectangular stone at Kamisina in the island of Lemnos, are in characters of an archaic Greek alphabet, but in an otherwise unknown tongue, which has a general resemblance to Etruscan. They are referred by Dr. C. Pauli, of Leipsic, to the latter part of the seventh century b. c.

The Necropolis of the Esquiline Hill.—A large necropolis was recently discovered on the Es-

quiline Hill, containing so great a proportion (two thirds) of supellex of Etruscan manufacture, that some persons attributed it to that people, and it has been regarded by Mr. J. H. Middleton ("Ancient Rome in 1885," Edinburgh) as implying the existence of an Etruscan city of great size and importance, previous to the legendary period, and as "strong evidence against the theory of an early Latin superiority in Rome," Signor Rodolfo Lanciani, the official superintendent of the excavations in that quarter, who participated in the discovery of the necropolis, sees in it only proof of the great extent of the trade that was carried on between the Latin colonists of Rome and their Etruscan neighbors. The supellex of the cemeteries of Alba Longa, one third of which are of Etruscan manufacture, show that its people had commercial transactions with the Etruscans for a long period. The intercourse between the settlers on the Palatine Hill and these people, from whom they were separated only by the river Rumion and its marshes, must have been tenfold greater.

Excavations for building a sewer in the region of the plain of Testaccio have brought to light one of the terminal stones of the sacred area of Rome in its proper place. The stone bears a record of the amplification of the area which was made in A. D. 49.

The Horrea Galbae.—One of the buildings of the public docks, or warehouses, on the banks of the Tiber, which were known as the Horrea Publica, or Horrea Caesaris, has been laid open. It consists of a series of rectangular courts, wide enough to admit carts, with staircases at intervals giving access to the offices above. An inscription giving the names of the officers and keepers of the Horrea Galbae was found in one of the rooms. These boards appear to have been composed of sixty members, men and women, the former being always in the majority. A marble slab of the date of the Emperor Hadrian, found in the same neighborhood, records the terms on which the warehouses were let. Also connected with these discoveries is that of the tomb of the founder of the *horrea*, Sergius Sulpicius Galba, son of Sergius, consul in the year 646 of Rome, and great-grandfather of the Emperor Galba. It is built in the severe style of the republic, and bears an inscription simply recording the name and position of the man, with a group of consular fasces, of five each, on either side.

Barracks of the Equites Singulares.—A part of the barracks of the *Equites Singulares*, or horse-guards of the Roman emperors, has been discovered in the Via Tasso. It runs parallel with an antique street thirteen feet wide, and contains a hall more than ninety feet long, with smaller apartments on each side, the whole of which is built in the reticulated work of Hadrian's time. In it were forty-three marble pedestals or slabs bearing inscriptions of acknowledgment of veterans of the corps for being *missi honesta missione*, or having obtained

honorable dismissal after twenty-five years of faithful service. The inscriptions are either raised by individuals or by groups of from six to forty men. Those raised by individuals are usually dedicated to one god; those raised by the subscriptions of groups often to several gods and goddesses. The building is supposed to be a part of the older barracks.

The Ancient Vetulonia.—The site of the ancient Vetulonia has been fixed by Dr. I. Falchi at Colonna, in the province of Grosseto. One of the tombs contained more than twenty bronze vases, together with shields, helmets, swords, lances, and vases of silver, one of which was chiseled. The collections in the aggregate represent an extraordinary quantity of remains of Etruscan art.

Herr Pfarrer Schreiner has laid bare the military works of the Roman station of Abusina, on the Danube, which was established to maintain the connection between the armies of the East and the West. The remains indicate that the fortress was one of great importance and strength, and afford numerous richly adorned objects.

England. Discovery of a Prehistoric Boat at Brigg.—Workmen excavating for the gas-works at Brigg, in North Lincolnshire, England, on the 20th of April, found, a few yards from the river Ancholme, and some two or three feet below the surface, a large boat, or canoe, cut out of the trunk of a solid tree. It was 48 feet long, 4 feet 4 inches wide, and 2 feet 9 inches deep, and had been shaped in a very workman-like manner with the adze or axe. The prow was rather blunt, and the stern—the log having been cut through to the end—had been fitted in with a plank end, beyond which the sides projected as if it had been designed that they should support a raised deck or seat. Large holes pierced through the wood toward the top edges of these projections appeared to have been intended for the insertion of cords to bind the sides and press them up close to the plank ends. Other smaller holes along the sides of the vessel may have been for cords for lashing the sides and preventing their springing. In hollowing the boat, ridges of timber had been left at intervals, crossing the bottom athwartship, which seemed to correspond with the floor-timbers of modern craft. No definite age has been assigned to this boat, but it is regarded as very ancient.

Afghanistan. The Colossal Statues of Bamian.—At Bamian, where the road between Cabul and Balkh crosses the Paropamisus range, at a height of about 8,500 feet above the sea, are five colossal statues, three of which are in niches cut out of the conglomerate rock of the cliff, the figures themselves being formed of the rock within the niche. The largest statue, which is one of these three, is 173 feet high, and is called by the Mussulmans the "male idol," and said by the Chinese to be an image of Buddha. At its feet are entrances, which communicate with stairs and galleries, so that

the top of the figure can be reached. The second statue—which is called the “female idol”—can also be ascended, and was ascended by Capt. Maitland, of the Anglo-Indian army, who, coming out by an opening over the head, measured it with a tape-line, and found its height to be 120 feet. The third statue has been estimated to be about 50 or 60 feet high, but it has almost entirely disappeared. The fourth statue is that of a sitting figure, as is represented in the accompanying illustration. The fifth statue is about a mile from the others. The cliff in which the niches and statues are executed is pitted with caves, some of which are shown in the engraving around the statue, which are said to have been excavated by

the statues were on “the northeast of the royal city”—probably Ghulghula, which was utterly destroyed by Genghis Khan in the thirteenth century—and speaks of one of them as a figure of Buddha. The presumption of their Buddhist origin is supported by all the characteristics of their style.

ARGENTINE REPUBLIC, an independent republic of south America. (For details of area, population, etc., see “Annual Cyclopædia” for 1883.)

Government.—The President is Dr. Juarez Celman, whose term of office will expire on Oct. 12, 1892. The Vice-President is Señor Carlos Pellegrini. The Cabinet was composed of the following ministers: Interior, Dr. Posse; Foreign Affairs, Dr. Wilde; Finance, Dr. Pacheco; War and Navy, General Racedo. The Argentine Minister at Washington is Dr. L. L. Dominguez, and the Consul-General at New York, for the Union, is Señor C. Carranza. The United States Minister at the Argentine capital is Hon. B. W. Hanna, and the American Consul at Buenos Ayres, E. L. Baker.

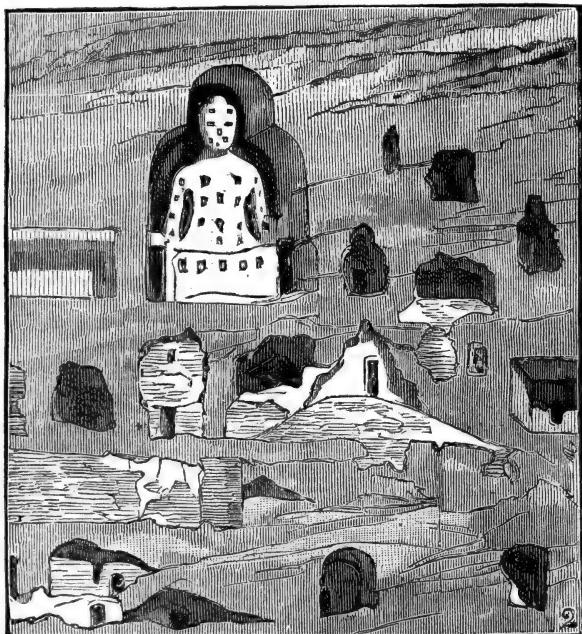
Army.—According to official returns bearing date of April, 1886, the army of the republic, exclusive of the National Guard, was 7,599 strong, comprising 3,638 infantry, 2,788 cavalry, and 1,448 artillery. The National Guard was 409,406 strong, 356,400 of whom were enrolled for active service, and 52,646 constituted the reserve force. The artillery was equipped with 250 guns, the majority being Krupp guns between 24 and 75 centimetres caliber, and the others, guns of 7 to 15 inches caliber, made on the Rodman, Armstrong, and Parrot systems.

Navy.—The navy consisted, in April, 1886, of three ironclads, six gunboats, seven torpedo-boats, six steam transports, and twelve sailing-vessels, carrying 1,366 men.

Finances.—At the close of the fiscal year 1885-'86 the public debt consisted of the following items:

Foreign debt.....	\$75,519,000
Home debt.....	46,664,000
Floating debt.....	26,601,000
Total.....	\$148,778,000

Argentine indebtedness and financial resources have been closely canvassed in Europe during the year, since, especially in Germany, there is a sort of mania for investing in loans of that country, chiefly because of the remarkable current of emigration of agriculturalists.



FOURTH (SITTING) STATUE OF BAMIAN.

Buddhist monks during, probably, the first five centuries of the Christian era. Many of these caves are inhabited; and some of them are shown to have been bricked up in front. The niches and caves are adorned with paintings and ornamental devices which show considerable artistic skill. The statues bear evidence of mutilations, which are said to have been caused by the soldiers of Timour, who shot arrows, and by the troops of Nadir Shah, who fired artillery at them. Their origin is not certainly known. As they are not mentioned in any of the accounts of Alexander's expeditions, it is supposed that they were not in existence in his time. Hwen Tsang, the Chinese pilgrim, who visited Bamian about A. D. 630, says that

The floating debt comprised the following items:

Due the National Bank.....	\$10,652,000
Due the Provincial Bank.....	4,647,000
Due European banks.....	4,775,000
Treasury notes outstanding.....	6,585,000
Sundry indebtedness.....	4,119,000
Total.....	\$30,028,000
Less coupons.....	3,427,000
Total.....	\$26,601,000

According to the budget estimate for 1886-'87, the income will exceed the outlay by \$1,088,410. The expenditure is estimated to exceed the last budget by \$2,590,000. There is an increase of outlay of \$3,533,000 in the Departments of the Interior, Public Instruction, Navy, and Foreign Affairs, and a decrease of \$943,000 in those of Finance and War. The increase in the Department of the Interior, \$1,825,000, comprises \$1,048,000 for railroads.

During the fiscal year ended in April, 1886, the province of Buenos Ayres had canceled \$11,599,442 of its bonded debt of \$53,491,098, leaving an indebtedness of \$41,891,656.

In consequence of the political excitement engendered by the congressional and presidential elections, the gold premium fluctuated continually, and at times wildly. After the excitement had abated, the influx of gold under the national and provincial loans effected in Europe hastened the downward course of the gold premium.

Early in January the Government made a 5 per cent. loan of £4,000,000 in London, at 80 per cent. During the summer the Provincial Bank, in behalf of the province of Buenos Ayres, negotiated a 5 per cent. loan of £2,500,000, to be issued Oct. 1, in Hamburg and Frankfort, the amount eventually to be extended to 50,000,000 marks.

The Government has been authorized by Congress to create a national bank, with power to issue notes to the extent of \$40,000,000 in the shape of *cédulas hipotecarias* for the purpose of loaning money on landed property, not to exceed 50 per cent. of its taxed value. The rate of interest to be 6 to 8 per cent. per annum, 1 or 2 per cent. to go toward the sinking fund to be provided for gradually extinguishing the issue; no single loan to any individual to exceed \$200,000. In addition to the interest, the bank is to be entitled to 1 per cent. commission; the nation to guarantee the issue and canceling of the debt, and a credit of \$1,000,000 to be opened at once, to enable the bank to go into operation.

Post-Office.—In 1885 the Argentine Post-Office handled 20,050,000 letters, and 15,425,000 newspapers and packages. The amount of postage collected was \$709,250, being an increase of 15 per cent. as compared with 1885, and 75 per cent. greater than in 1881. The number of post-offices is 637.

Railroads.—In October, 1880, there were in operation in the republic 2,318 kilometres of railway: national, 1,810; provincial, 348; pri-

vate, 1,104. In 1886 there were in operation 6,152 kilometres, of which 1,877 were national, 1,104 provincial, and 3,160 private property. There were consequently built in five years 3,884 kilometres. The total gross earnings of all the railroads in operation in 1885 were \$16,150,894; of net earnings, \$6,489,701. The percentage of net earnings has been 7.32, against 2 per cent. average in Canada; 3½ per cent. in Australia and Belgium; 4½ per cent. in Germany and France, 4½ per cent. in England and British India, and 5 per cent. in the United States.

There were built in 1885 the following portions of lines:

	Kilometres.
On the Andine.....	95
On the Northern Central.....	100
On the Santiago del Estero.....	166
On the Campana.....	153
On the Buenos Ayres and Pacific.....	386
On the Argentine Central.....	30
Total.....	885

Canalization.—On Aug. 3 the Governor of the province of Buenos Ayres submitted to the Provincial Legislature the project of reclaiming certain swamp-lands by means of drainage. They are near the Salado, Vecino, and Samborombon water-courses, and subject to extensive inundations. The lands alluded to cover an area of 2,480 square leagues, constituting about half of the entire province. There would have to be expropriated two square leagues, estimated to be worth \$18,000,000, and the digging of the canals will involve an expenditure of \$40,000,000. In order to raise this amount, the Governor proposes to negotiate a 6 per cent. loan in Europe to the amount of \$54,000,000, which will probably net \$48,000,-000. The expropriated land he expects to be able to sell for three times its cost, i. e., for \$54,000,000, and, adding thereto the \$48,000,-000 of estimated proceeds of loan, the sum realized would be \$102,000,000. Deducting therefrom the \$18,000,000 to be paid for land, and \$40,000,000 cost of canalization, there would be a profit of \$44,000,000, sufficient to cancel the foreign loan if negotiated at 80 per cent.

Telegraphs.—The lines in operation in 1885 aggregated 18,767 miles, and employed 1,283 persons. The telephone service now extends 70 kilometres beyond Buenos Ayres, facilitating communication with the new port of call, Ensenada.

Viticulture.—The vine has begun to be extensively cultivated in the provinces of Mendoza, San Juan, Catamarca, and La Riorja, and the wine made now competes with similar growths from Spain and Italy. The import of wine into the republic had meanwhile increased, notwithstanding increased domestic production, from \$6,680,824 in 1883 to \$8,259,816 in 1884; that of spirits from \$2,051,123 to \$2,353,825, and of beer from \$584,866 to \$825,717.

Commerce.—The foreign trade of the Argentine Republic for five years has been:

ARGENTINE REPUBLIC.

YEARS.	Imports.	Exports.
1881.....	\$54,030,000	\$56,069,000
1882.....	61,000,000	60,389,000
1883.....	80,485,000	60,207,000
1884.....	94,056,141	69,029,886
1885.....	95,895,102	91,191,145

The Argentine foreign trade was distributed in 1884 as follows (in thousands of dollars) :

COUNTRIES.	Import.	Export.	COUNTRIES.	Import.	Export.
England.....	30,727	7,211	Brazil.....	2,332	1,462
France.....	16,785	22,518	Uruguay.....	5,638	2,111
Belgium.....	7,249	14,880	Chili.....	12	2,082
Germany.....	8,863	6,814	Paraguay.....	1,414	94
Italy.....	3,996	1,804	West Indies...	1	759
Spain.....	4,701	1,517	Other countries.	8,729	2,680
Holland.....	1,105	2	Total.....	94,056	68,029
United States.	7,454	4,065			

The goods shipped were :

Wool, tons.....	114,345	Cattle, head.....	147,095
Hides, number.....	2,849,709	Minerals, value.....	\$1,024,000
Sheep-skins.....	24,939	Bones, tons.....	38,255
Horse-hides, number.....	281,451	Linseed, tons.....	38,992
Other skins, value \$1,397,000		Wheat, tons.....	108,499
Tallow, tons.....	14,338	Indian corn, tons.....	118,710
Horse-hair, tons.....	1,738	Ostrich-feathers, number.....	81
Jerked beef, tons.....	18,870		

Wool showed in 1885 an increase of exportation of 14,000,000 kilogrammes, and in value \$8,945,000; jerked beef increased \$2,300,000 worth, and linseed \$1,600,000. During the wool-clip of 1885-'86 the export from Buenos Ayres, from Oct. 1, 1885, to July 31, 1886, was 259,328 bales, against 286,512 bales the previous season. During the first seven months of 1886 there were imported into Buenos Ayres \$55,197,899 worth of merchandise, compared with \$42,098,126, during the corresponding period of the preceding year; the export through the same port was \$41,208,987 and \$40,829,050, respectively. The River Plate slaughterings of cattle were :

LOCATION.	1886.	1885.	1884.	1883.
Buenos Ayres.....	181,661	246,600	88,700	154,800
On the banks of rivers.	744,106	754,600	736,100	648,500
Montevideo.....	314,162	256,500	341,500	262,500
Rio Grande.....	341,000	385,000	345,000	312,000
Total.....	1,580,929	1,642,700	1,511,300	1,377,300

The American trade with the Argentine Republic is shown in the following table :

FISCAL YEAR.	Imports from the Argentine Republic into the United States.	Domestic exports from the United States to the Argentine Republic.
1886.....	\$5,022,346	\$4,331,770
1885.....	4,328,510	4,327,026
1884.....	4,110,938	4,925,818
1883.....	6,192,111	8,857,670

Change of Duties.—Dating from Jan. 1 the new export duties were 4 $\frac{1}{10}$ per cent. on wool and sheep-skins, and 3 $\frac{1}{10}$ per cent. on hides, tallow, horns, and bones, there being added 15 per cent. to each of these rates. Changes in import duties also becoming operative on Jan. 1, were as follows: Yerba maté, or Paraguay tea, had the specific duty of 7 cents per kilo-

gramme changed to an ad valorem duty of 45 per cent. The duty on stearine and paraffine candles was raised from 10 to 15 cents per kilogramme, and on stearine from 8 to 12 cents.

Education.—In 1869, out of 413,465 children old enough to attend school, only 82,671 were being taught in public or private schools, the percentage receiving instruction being 19. In 1885, 168,378 out of a total of 503,691 attended school, or about 34 per cent.; there were in the latter years 1,741 educational establishments, the number of teachers therein being 3,698. In 1883 the number of schools was 1,473; of teachers, 2,602; of pupils, 107,961. The progress in the last two years was, therefore, more striking still than what had been accomplished since 1869. In 1886 many primary schools were in course of construction.

Immigration.—In 1885, 108,722 immigrants landed at Buenos Ayres, and 21,500 cabin-passengers, constituting a total of 130,222 newcomers—an increase of 30,918 over the previous year. Of the immigrants, only 30 per cent. were agriculturists.

Colonization.—There are in a flourishing condition in the province of Santa Fé alone 98 settlements, occupying an area of 748,585 square cuadras, 251,600 of which are under cultivation. Of these, 158,800 are under wheat-culture; 45,300 produce flax, and 47,500 Indian corn and other cereals.

The Government did not feel induced to push in 1885 its system of official colonization, although experience had demonstrated its advantages. It considers sufficient for the time being the 18 Government settlements extant, 11 of these being on Government lands; 5 in the province of Córdoba, and 2 in Entre-Ríos.

On the other hand, a beginning has been made with Government land-sales, and the result has been satisfactory. Thus there were sold 516 leagues of pastures in the Territory of Neuquén, half cash and the balance payable in annual installments. The amount realized was \$1,106,222, \$173,789 being paid in cash. The average price obtained per league was \$2,019, and the expense of surveying the lands at the charge of buyers. In the Chaco district there were sold small farms for agricultural purposes to the extent of \$15,118, \$3,024 being paid in cash. There were sold altogether \$66,489 worth of farming-lands. The land-sales during the second quarter of 1886 were as follow:

PROVINCES.	Square leguas.	Amount of money collected.	Price per square legua.
Buenos Ayres.....	117	\$3,919,000	\$24,400
Frontier districts.....	86	347,000	4,040
Córdoba.....	22	166,000	7,550
Entre-Ríos.....	2	50,000	25,000
Mendoza.....	11	23,000	2,100
Santa Fé.....	91	697,000	7,700
Other provinces.....	151	50,000	330
Total.....	450	\$4,652,000	\$9,700

The Government is the owner of 126,125 square miles of public lands; but these com-

prise the 60,000 square miles situated within the territories recently begun to be settled. But, independently of the latter, the Government owns in the provinces 36,400 square miles of paturage-lands; 29,100 of forest and mountain-lands, and 625 agricultural lands. The pastures are worth \$388,000,000, the forests and mountain-lands \$49,000,000, and the portion suitable for farming purposes \$90,000,000, constituting in the aggregate a national domain of \$527,000,000.

Real estate of every kind has risen in value, as follows:

LOCALITIES.	1860.	1884.	Increase in value.
	Value.	Value.	Per cent.
Throughout the republic.	\$107,000,000	\$487,000,000	385
In the province of Buenos Ayres,.....	44,000,000	301,000,000	584
In the remaining provinces.....	63,000,000	186,000,000	195

During the interval the population increased 154 per cent., and the product of stock-farms and agriculture 252 per cent.

Exhibitions.—Besides the International Exhibition of Agricultural Products and Machinery, opened at Buenos Ayres on April 25, the Italian colony there held a second exhibition of its own, the Government granting every facility for the purpose. The industrial center of that city, moreover, contemplates holding a national exhibition preparatory to the exhibit that the republic will make at Paris in 1889.

Exploring Expeditions.—M. Thouar, the French explorer, returned from his Pilcomayo expedition, which established the fact that the Pilcomayo river is navigable through its entire course. There is to be formed a river steam navigation company between Buenos Ayres and Bolivia, for navigating the Pilcomayo, and a committee has been appointed.

The Argentine Geographical Institute was preparing to fit out a scientific exploring expedition to Patagonia. It was to leave Santa Cruz under the command of Lieut.-Col. Noyano, thence to proceed southward along the Andes till it reached the Straits of Magellan. It was hoped that the Government would co-operate, in order to establish whether the Rio Negro and Santa Cruz rivers are navigable, and that it would order the frontier troops at Limay to assist the expedition.

In September the members of a French scientific exploring expedition arrived at Buenos Ayres, with the intention of exploring the Central Chaco for geographical, ethnological, and zoological purposes. M. de Brettes, member of the Paris Geographical Society, is the commander of the expedition. He will be accompanied by Engineer Boiviers, M. Robin, an officer of artillery, and M. Judas, who has recently arrived from Tonquin. The exploring party was to set out from Tarija.

Gold Discoveries in Patagonia.—The discovery of placer-gold near Cape Virgins and the

Straits of Magellan induced the Government to place one of its cruisers, the "Villarino," on the line, touching at Patagones, Chubut, Deseado, Santa Cruz, and Gallego. The gold is found in the sands of a tract of land between the Straits of Magellan and the Gallegos river, under the fifty-first parallel of southern latitude. It exists both in the sands of the beach and of rivers, but varies a great deal in richness. On the Chilian side, at Punta Arenas, a free port, many adventurers were engaged in washing the auriferous sands. Both in the Argentine Republic and in Chili the existence of gold near the frontier of their southernmost possessions created excitement, and the Argentine Government took the necessary steps toward establishing a maritime authority on the spot, by sending down there a committee of officers and an engineer. Meanwhile, applications for concessions to work the mines were pouring in.

Arizona. Territorial Government.—The following were the Territorial officers at the beginning of the year: Governor, C. Meyer Zulick; Secretary, James A. Bayard; Treasurer, Thomas J. Butler; Auditor, E. P. Clark; Superintendent of Public Instruction, R. L. Long. Judiciary, Supreme Court: Chief-Judge, John C. Shields; Associate Justices, William W. Porter and William H. Barnes.

Mining.—The product of Arizona in precious metals for 1885 is given by Wells, Fargo & Co. as \$5,748,710 silver and \$846,426 gold. To this should be added 20 per cent. for ores extracted by chlorides and shipped to San Francisco and Colorado for treatment. This shows a falling off from 1884. Mining industries have been depressed for several years, consequent upon the low price of silver and copper. During the present year much attention has been given to prospecting for gold, with gratifying results. The copper-mines of Arizona, except where they are close to the railroad, and ores are easily fluxed, can not be worked at a profit. The coal-fields in Apache and Yavapai counties will be worked profitably when railroads make a market.

Railroads.—In connection with the Southern Pacific and the Atlantic and Pacific, which traverse the Territory from east to west, the Arizona and Sonora, which runs from Benson to Nogales on the Sonora line, and the Clifton and Lordsburg narrow-gauge, which runs for about 40 miles in Arizona, there are now under construction a road from Prescott Junction on the Atlantic and Pacific to the city of Prescott, a distance of 72 miles; one from Calabasas *via* Tucson to Globe City, which will be about 150 miles long, and a road from Maricopa Station on the Southern Pacific *via* Tempe to Phoenix.

Desert Lands and Irrigation.—Arizona contains nearly 114,000 square miles. About 18,000,000 acres are utilized for stock-raising, and upon it graze nearly 1,000,000 head of cattle, more than 1,000,000 sheep, besides horses,

mules, and other domestic animals. Nutritious grasses grow everywhere, and, could the residue of the land adapted to grazing be utilized for that purpose, this might become the greatest stock-raising country in the United States. The want of water is the only drawback. For the most part these lands lie so that water reservoirs could be constructed.

Products of the Salt River Valley.—In the Salt River Valley during the past year there have been under cultivation 44,200 acres of land, supplied with water from the various canals, and divided as follows: Barley, 16,000 acres; wheat, 14,000; alfalfa, 10,000; miscellaneous products, 4,000; grapes, 700; fruit-trees, 500.

Gila River and other Valleys.—What has been accomplished in the Salt River Valley through irrigation has been followed with equally good results in the Gila River Valley, as the orchards, vineyards, grain and alfalfa fields of Florence and Gila Bend fully attest. The lands of the Colorado River Valley, near Yuma, where water has been brought upon them, are found to be well adapted to the growth of bananas and all citrus fruits. In these valleys the fruit ripens three weeks to a month earlier than in Southern California. Their adaptability to grape-culture and wine-making has been proved.

High Mesa - Lands.—The high mesa-lands of Graham, Mohave, Yavapai, and Apache Counties, wherever water has been introduced upon them, are found to be very productive. Here are grown peaches equal in flavor and excellence to the best Delaware product—raspberries, pears, blackberries, cherries, and apples not excelled anywhere. What has been done in these counties by irrigation appears from the following result of farming in Apache County this year:

ARTICLES.	Land.	Production.
	Acres.	Pounds.
Wheat.....	8,810	8,972,000
Barley.....	1,720	2,520,000
Oats.....	8,508	8,786,450
Corn.....	1,312	1,459,440
Total	9,848	11,787,920

Educational.—By reference to the annual report of the Bureau of Education for the years 1883-'84, it will be seen that Arizona expended in that year per capita on children enrolled in the public schools, \$35.84, and on average attendance in the public schools, \$48.33, which is more than that of any other State or Territory. The facilities in this direction have been much extended during the past year. There are now in successful operation a normal school at Tempe, in Maricopa County, and in course of construction a Territorial University at Tucson, Pima County. Any child can obtain a good common-school education.

Political.—A delegate to Congress, a Superintendent of Public Instruction, and members of the Legislature, were elected on the 2d of No-

vember. The Democratic candidate for delegate was Marcus A. Smith. The Republican candidates were: For delegate, C. C. Bean; Superintendent, Thomas Cordis. The Democrats were successful. The vote of the Territory for delegate has been as follows:

YEARS.	Republican.	Democrat.
1880.....	8,606	4,095
1882.....	5,141	6,121
1884.....	6,747	5,595

Indian Hostilities and General Progress.—Under this head, the Governor, in his report to the Secretary of the Interior, dated Sept. 25, says: "The constant raids of the renegade Apaches, under the lead of Geronimo and Natchez, for the past sixteen months, have done much to retard the development of the Territory. But the capture of these outlaws and the transportation of the Chiricahua and Warm Spring Indians to a distant country, have had a beneficial effect upon our industries. The border counties of Cochise, Pima, and Graham have suffered materially from this cause during the past year, and indirectly all sections of the Territory have been affected. In some counties the tax-roll shows for this year an addition of 50 per cent. It is certain that the assessment-roll of the Territory will show a very decided increase upon the assessed values of 1885. The San Carlos Indian Reservation contains 3,950 square miles, well watered and well timbered, most of which is as good as any agricultural land in this Territory or in this country. Upon this tract are gathered of Yuma, Tonto, and White Mountain Apaches about 3,500, so that each Indian, male and female, young and old, holds over 700 acres of land. These Indians are nearly self-supporting."

ARKANSAS. State Government.—The following were the State officers during the year: Governor, Simon P. Hughes, Democrat; Secretary of State, E. B. Moore; Treasurer, W. E. Woodruff, Jr.; Auditor, A. W. Files; Attorney-General, D. W. Jones; Commissioner of State Lands, Paul M. Cobbs; Superintendent of Public Instruction, Wood E. Thompson. Judiciary, Supreme Court: Chief-Judge, Sterling R. Cockrill; Associate Justices, W. W. Smith and B. B. Battle.

Financial and Material Progress.—The following statement shows the financial condition of the State:

Rate of taxation.....	4 mills.
Expenses State government, 1884 to 1886.....	\$380,000
State debt, 1886.....	5,103,000
General revenue fund in treasury, 1886.....	419,615
Tax on railroads, 1886 (4 mills on).....	13,721,000
State land-office—receipts above expenses, 1884 to 1886.....	110,027

According to a public declaration of the Governor, there are nearly 2,000 miles of railroads in operation in Arkansas, the population is at least 1,000,000, and the assessed valuation of property has increased from \$87,000,000 to \$130,000,000 since 1874. Taxes are now paid upon all lands and other property

owned by railroad corporations in the State, the assessed valuation of their tracks, superstructures, and rolling-stock having increased about \$7,500,000, since 1884, being now \$13,704,638. The State expended for the year ending June 30, 1885, for school purposes, \$729,168.31, leaving a balance of school fund on hand of \$469,837.51. The 5-mill district-school tax is voted annually by the people in nearly all the school districts.

Within the past year have been erected substantial buildings for the School for the Blind, and that for the deaf-mutes, and a large addition to the Lunatic Asylum, and two new buildings within the walls of the Penitentiary, and the old State-house has been repaired and improved.

Political.—The Democratic State Convention was held in Little Rock, on the 30th of June and the 1st of July. The following ticket was nominated: For Governor, Simon P. Hughes; Secretary of State, Elias B. Moore; Attorney-General, Daniel W. Jones; State Treasurer, William E. Woodruff; Associate Justice, Burrell B. Battle; Auditor of State, William R. Miller; State Land Commissioner, Paul M. Cobbs; Superintendent of Public Instruction, Wood E. Thompson. The platform adopted contained the following:

We indorse the National Democratic Administration, and reaffirm our allegiance to the national Democratic party and our firm adherence to its time-honored principles.

We regret the depressed condition of the agricultural interests of the State, and the strained relations of capital and labor, and trace these conditions directly to the operation of a high protective tariff.

We are in favor of the unlimited coinage of silver, and demand that the coin of the United States, gold and silver, be paid out on the debts of the Government, without discriminating against silver.

We recommend the payment of the State debt as rapidly as it can be accomplished under reasonable taxation, consistent with public interest.

We recognize that agriculture is the main stay and chief support of the State; we demand that the General Assembly shall foster and encourage it by establishing a Bureau of Agriculture and Labor Statistics, with a view to the improvement of the conditions of the laborer and the advancement of agriculture.

We recognize that railroads are among the prime factors of modern civilization, and we demand that the General Assembly shall foster and encourage their construction and maintenance by wise and just laws, and shall prohibit all willful obstruction to their operation. At the same time we declare that railroads are public highways, subject to the control of the State for the benefit of the public. We therefore demand that the General Assembly shall so regulate freight and passenger charges as to protect the interest of the people while doing justice to the railroads, making their charges equal and uniform, and shall prohibit, under severe penalties, all discriminations in favor of or against particular persons, localities, and classes of freight.

The Republican State Convention met in Little Rock, near the end of July, and nominated the following ticket: for Governor, Lafayette Gregg; Secretary of State, H. A. Millen; Attorney-General, D. D. Leach; Treasurer, L. Altheimer; Auditor, David B. Russell; Asso-

ciate Justice, Supreme Court, O. D. Scott; Land Commissioner, A. W. Stone; Superintendent of Public Instruction, A. H. Boles. The following are the essential features of the platform:

We demand that the system of protection to American industries, which has been built up and sustained by the Republican party, be maintained in all its integrity; that the great privileges which have been achieved by the sacrifice of the blood and treasure of the nation be forever maintained, and for this reason we favor an honest redemption of every pledge made by the nation to those who sacrificed their lives for the maintenance of the Union.

We are opposed to the policy which indiscriminately vetoes acts for the relief of those who imperiled their lives and sacrificed their health for the nation in time of its peril, and rewards insubordination in time of war by special places of honor and profit.

We demand that the public domain, which is the common property of the people, shall be reserved for actual settlers and neither donated nor sold to speculators or soulless corporations.

We denounce the Democratic party of this State for failing to redeem any of the pledges made to the people; for enacting and maintaining a system of criminal laws, which in cruelty surpasses that practiced in the middle ages, for permitting convict-labor to compete with honest workingmen; for the failure to punish corruption and embezzlement in high places, and especially for allowing the State treasury to be plundered of over \$100,000 of the hard-earned money of the people, and signally failing to punish the plunderers or to restore the money into the treasury, and rendering any attempt therat futile by approving bonds of officials, known to be nugatory and void by the approving official at the time of their approval; for enacting laws which nullify the beneficial provisions of the Constitution regarding homestead exemptions; for failing to enact laws for the protection of the laborer, and giving him a cheap and speedy remedy for the collection of his just dues; for encouraging the most flagrant violation of the sacred right of suffrage; and for the purpose of assisting these frauds they have provided for separate elections at great expense to the people and injury to the business interests.

We recognize the fundamental principle of our Government that all power is in the people, and we therefore favor a submission to the people of the State of an amendment to the Constitution prohibiting the manufacture or sale of alcoholic liquors in this State.

In all elections in this State where there are no regular Republican candidates in the field, we recommend to the Republicans that they support the Independent candidates, as against the regular nominees of the Democratic party.

Early in August a ticket was put in the field by a committee of the State Agricultural Wheel, appointed at a meeting held June 9. The following were the nominees: for Governor, Charles E. Cunningham; Secretary of State, J. J. Bell; Auditor, Oliver S. Jones; Treasurer, T. J. Andrews; Superintendent of Public Instruction, A. B. Marberry; State Land Commissioner, C. E. Tobey; Attorney-General, John M. Harrell. Mr. Harrell declined the nomination. At the election, on Sept. 6, the Democratic ticket was successful. Returns from 66 counties out of the 75 show the following vote for Governor: Democratic, 81,600; Republican, 46,100; Wheeler, 17,600. At the same time a vote was taken on the question of license and no license. In 70 counties the total vote was 165,000, and the vote for license 75,000;

while the vote against license was nearly 65,000. This shows an increase in the Prohibition vote of about 21,000 in the past two years—the vote of 1882 was less than 20,000, and that of 1884, 44,000. In the last election the Prohibitionists carried thirty counties, and many of the more ardent members are in favor of nominating a full State ticket and making a strong fight for the State officers. On Nov. 2 five Democratic Congressmen were elected.

Agricultural Wheel.—At the invitation of the President of the State Agricultural Wheel of Arkansas, a conference of the State Agricultural Wheels of Tennessee, Kentucky, and Arkansas was held at Litchfield, Ark., on the 28th and 29th of July. The result was the formation of "The National Agricultural Wheel of the United States of America," to consist of delegates from the various State Agricultural Wheels, and the framing of a constitution for that body. The organization is secret. The reasons for its formation and its objects are set forth in the following preamble and extracts from the Constitution:

Whereas, The general condition of our country imperatively demands unity of action on the part of the laboring classes, reformation in economy, and the dissemination of principles best calculated to encourage and foster agricultural and mechanical pursuits :

We hold to the principle that all monopolies are dangerous to the best interest of our country.

We hold to the principle that the laboring classes have an inherent right to sell and buy when and wherever their interests are best served, and patronize none who dare, by word or action, oppose a just, fair, and equitable exchange of the products of our labor.

We denounce as unjust and unfair any set of men who sell at large profits to gain the advantage over the laboring classes, and obtain the product of their labor at greatly reduced prices.

Therefore we have formed the National Agricultural Wheel of the United States of America, for the purpose of organizing and directing the powers of the industrial masses, but not as a political party. In this organization are sentiments and measures for the benefit of the whole people, yet it should be borne in mind when exercising the right of suffrage that many of the objects herein set forth can only be obtained through legislation.

The objects of the order shall be to unite fraternally all acceptable male persons over the age of eighteen years who are engaged in the occupation of farming. Also all mechanics who shall be actually engaged in the pursuit of their respective trades : *Provided*, That no proprietor of any manufacturing establishment employing more than three hands shall be eligible to membership ; and, provided further, there shall be separate organizations for the white and colored.

To give all possible moral and material aid in its power to its members, and those depending on its members, by holding instructive lectures, by encouraging each other in business, and by assisting each other to obtain employment.

The body adjourned to meet at McKenzie, Tenn., on the second Tuesday of November, 1887, subject to the ratification of the State Agricultural Wheels.

ART. See FINE ARTS IN 1886.

ARTHUR, Chester Alan, twenty-first President of the United States, born in Fairfield, Franklin County, Vt., Oct. 5, 1830; died in New

York city, Nov. 18, 1886. He was the eldest son, among nine children, of Rev. William Arthur, who emigrated from Ireland at the age of eighteen, published the "Antiquarian" for several years, and was the author of "Family Names" (New York, 1857). He was a Baptist, and occupied pulpits in New York and other cities. His wife was Malvina Stone, granddaughter of Uriah Stone, a New Hampshire pioneer. Chester was prepared for college at Union Village and at Schenectady, and entered the sophomore class of Union College in 1845. He taught school during the first and last years of his course, and after graduation, at eighteen years of age, he fitted boys for college, at his home in Lansingburg, and became principal of an academy at North Pownal, Vt. In 1854 President Garfield, then a student at Williams College, taught penmanship in this academy. While teaching for a livelihood, Mr. Arthur was pursuing a course of legal studies, and in 1853 he went to New York city and entered the office of Erastus D. Culver, was admitted to the bar, and became partner in the firm of Culver, Parker, and Arthur. Mr. Culver, who had been an anti-slavery member of Congress, was a personal friend of Dr. Arthur's, as was also Gerrit Smith ; and from their recitals of the dragging through the streets of Boston of William Lloyd Garrison, and the indignities offered to many other anti-slavery men and women, young Arthur imbibed a strong hatred to slavery and its effects. He had ample opportunities to prove the strength of his principles and welcomed them.

The first was in the famous Lemmon case, in which a slaveholder named Jonathan Lemmon, wishing to take eight slaves to Texas, took them first to New York from Norfolk, intending to ship them thence, when Louis Napoleon, a free colored man, petitioned for a writ of *habeas corpus*, which was issued by Judge Elijah Paine of the Superior Court of New York city. In the trial that followed, Mr. Culver and John Jay defended the slaves, and H. D. Lapough and Henry L. Clinton appeared for the master. The decision rendered by Judge Paine was, that the slaves were made free by being brought by their master into a free State, and in December, 1857, the Supreme Court affirmed Judge Paine's decision. Mr. Arthur was an earnest friend of the slaves, went to Albany to promote legislative action in their behalf, and was one of their counsel, William M. Evarts being also on that side of the case, while Charles O'Conor was retained by the slaveholder. Another case that brought out Mr. Arthur in defense of the colored people was in regard to the provision that they should not ride in New York streetcars, although no separate means of travel was provided for them. One Sunday in 1855 a colored woman named Lizzie Jennings, on her way home from a Sunday-school, of which she was superintendent, was ejected from a Fourth Avenue car. Culver, Parker, and Arthur,

were her counsel in a lawsuit, and as the result the right of colored people to ride in the street-cars was established.

At the beginning of the civil war in 1861, Mr. Arthur, who had been engineer-in-chief on the staff of Gov. Morgan, with the rank of brigadier-general, became acting quartermaster-general. In 1862 he was inspector-general of New York troops in the field. On June 28 of that year, he acted as secretary for the meeting of Governors of the loyal States, held at the Astor House, in New York city. The result of the meeting was a recommendation to President Lincoln to call for troops. When the 300,000 volunteers were asked for, Gen. Arthur resigned his office of inspector, and was again made quartermaster-general. Six months later, when Gov. Morgan was succeeded by Gov. Seymour, he went out of office, and won from his Democratic successor high praise for the condition in which the department was found. He says: "I found, on entering on the discharge of my duties, a well-organized system of labor and accountability, for which the State is chiefly indebted to my predecessor, Gen. Chester A. Arthur, who by his practical good sense and unremitting exertion, at a period when everything was in confusion, reduced the operations of the department to a matured plan, by which large amounts of money were saved to the Government, and great economy of time secured in carrying out the details of the same."

For the next ten years Gen. Arthur practiced his profession, the first four years with Henry G. Gardner, the next five alone, and then he formed a copartnership under the firm-name of Arthur, Phelps, and Knevals.

During all this time he took an active interest in politics, and in 1871 was appointed, by President Grant, Collector of the Port of New York. At the close of a four years' term in that office he was renominated, and confirmed the same day, the Senate waiving the form of referring the appointment to a committee, a courtesy previously shown only to ex-Senators. He had been in office nearly seven years when President Hayes asked for his resignation, and, at the same time, offered him a foreign appointment. The civil-service rules were in force, so that Collector Arthur's removal could not be made except for cause. A committee had been previously appointed to investigate the management of the Custom-House, and they had presented several criticisms; but Gen. Arthur refused to resign, and called for a further committee of investigation. Two such were appointed, and both reported that nothing on which a charge of official unfaithfulness could be based had been discovered. A petition was framed, requesting his retention in office, and signed by all the judges of the New York courts, and most of the men prominent at the bar or in mercantile life in New York City; but it was suppressed by Mr. Arthur. The President and the Secretary

of the Treasury were obliged to withdraw all accusations except that of active participation in politics, Mr. Arthur sympathizing with the Grant or third-term wing of the Republicans. The letter of defense written by the collector opens as follows: "The essential elements of a correct civil service I understand to be: first, permanence in office, which of course prevents removals except for cause; second, promotion from the lower to the higher grades, based upon good conduct and efficiency; third, prompt and thorough investigation of all complaints, and prompt punishment of all misconduct. In this respect I challenge comparison with any department of the Government under the present or under any past national Administration. I am prepared to demonstrate the truth of this statement on any fair investigation." Then follows an array of figures, which proved that the removals for all causes had been only $2\frac{1}{4}$ per cent. against an annual average of 28 per cent. under the three previous Administrations, and 24 per cent. before that time. In making promotions, the uniform practice was to raise men from the lower to the higher grades, and all but two appointments in one hundred, to salaries of \$2,000 and over, had been so made. Gen. Arthur also showed that the expense of collecting had been, during previous Administrations, $\frac{59}{100}$ of one per cent., and during his $\frac{62}{100}$ of one per cent.; yet, six months later, he was removed. In the Republican National Convention that met in Chicago in 1880, Mr. Arthur was a delegate at large. When James A. Garfield had been nominated for President, the New York members presented Arthur's name for the second place on the ticket. The suggestion was well received at once, and after one ballot the choice was made unanimous. On the death of President Garfield, Sept. 19, 1881, Mr. Arthur succeeded to the presidency. It was a time of great excitement and gloomy prediction. Before President Garfield was shot, the two New York Senators, Conkling and Platt, had resigned their seats, after having appealed to the President to withdraw a nomination that was obnoxious to them, the appeal being headed by Vice-President Arthur himself, who even went to Albany to help the Senators in an effort to obtain justification by a re-election, but without success. The emergency of President Garfield's death brought out Gen. Arthur's best abilities, and as he took the oath of office the new President ceased so completely to be the partisan, that the muttered disaffection died away, and the nation settled down into confidence and ultimate admiration. His inaugural (which may be found in the "Annual Cyclopedias" for 1881, page 847) was not more reassuring than his effort to realize it was sincere. The verdict upon his Administration was almost universally favorable. The scholarly, Christian gentleman in private and social life, he was also the wise statesman, and the dignified and representative American, who held broad and conscientious

views in regard to the interests of the whole country. The notable acts of his Administration are recorded under their appropriate heads in the "Annual Cyclopaedia" for 1881-'85.

At the expiration of his term of office he returned to his home in New York city. About a year afterward he suffered a serious attack of illness, and although from that time he had been compelled to use precautions in regard to his health, his death was finally a surprise to the community. The funeral services, both in New York and in Albany, where the interment took place, were marked by extreme simplicity, and were at the same time notable for the number of eminent men that were present. Mr. Arthur was a widower at the time of his election to the vice-presidency, his wife having died about a year before that event. She was a daughter of Commander Herndon, a naval officer, who explored and wrote of the valley of the Amazon, and who perished with the steamer "Central America," which went down in the Gulf of Mexico with 426 souls on board. The ex-President left a son and daughter. (For portrait, see "Annual Cyclopædia" for 1881.)

ASPINWALL. It was estimated that the number of inhabitants in the city called by Americans Aspinwall, and by the natives Colon, had reached 10,000 when the calamitous events of the spring of 1885 occurred. The manner in which Aspinwall became a mass of ruins, and the events as they took place in chronological order, are here presented, with a brief review of the circumstances leading up to the termination that embarrassed the operations of five great business enterprises at an expense to them of millions of dollars. On March 26, 1885, Capt. John M. Dow, representing the Pacific Mail Steamship Company in Aspinwall, received a letter dated the previous day from the sub-Secretary of the State of Panama, by direction of the citizen-President, informing him that the delivery of war materials to consignees at either Colon or Panama was absolutely prohibited, and that if such articles should come by the steamers of the Pacific Mail Steamship Line they must be held in deposit and the Government advised of such arrival. In these preliminary arrangements Capt. Dow acquiesced; but in the mean time the citizen-President, Dr. Arosemena, had resigned his office, and on the 27th Capt. Dow received a letter from the Secretary-General of the Citizen Commander-in-Chief of the Third Division, Gen. Gonima, acquainting him with the fact that he, the commander-in-chief, by decree of the 26th instant, had assumed the position of civil and military chief of the State, and informing him that, in case the rebels should attempt to remove arms and munitions of war from the steamers, the agent might ask protection from the American or French vessels of war on the part of Colon. On the 30th the steamer "Colon" arrived from New York. She belonged to the Pacific Mail Line, and Capt. Dow found a shipment of fifty-

two packages marked "M" (in a diamond), "Colon," consigned to order. His instructions were not to deliver these or any other arms and munitions of war from the ship without orders from the U. S. consul or Commander Kane, of the U. S. steamer "Galena." On the way to Panama, for which place he set out on the same day, he was overtaken by a telegram from George A. Burt, General Superintendent of the Panama Railroad, saying that the Pacific Mail wharf was in the possession of an armed force under Prestan; that Mr. Connor, agent of the Pacific Mail Steamship Company, was under arrest; that the United States ensign hung union down at the fore of the "Colon"; that the U. S. consul, Mr. Wright, was on board the ship; and Commander Kane, of the "Galena," in company with the commander of the British war-vessel "Lily," had just left his office to go on board ship and take an armed force to the "Colon" by boat. Capt. Dow took the next train back, and arrived at Colon at 2.30 p. m. Before three o'clock he received a call at his office from Prestan, who asked that the arms and ammunition should be delivered, presenting an indorsed bill of lading. Capt. Dow told Prestan he had no authority to deliver the shipment without an order from the U. S. consul or Commander Kane, of the "Galena," as he had been directed by the U. S. consul, Mr. Wright, under instructions from the U. S. consul-general at Panama, Mr. Adamson, not to deliver the goods under any circumstances. Mr. Burt went to the wharf to ascertain where the packages were stowed, and Prestan called a squad of men, and, arresting Capt. Dow and the rest of the party, marched them into the street, and, looking in the direction of the "Galena," said to the guard in Spanish, "At the first gun you hear fired from the vessel, shoot these men." Permission was given, however, to Ensign Richardson to report the arrest to Commander Kane, and he went out to the ship, while the others were taken to the guard-house, where they found Mr. Connor, who had been under arrest since noon. After an hour's confinement, Consul Wright consented to allow the packages to be delivered, as the only means of releasing the party, and they repaired under escort to the wharf, and Lieut. Judd was permitted to go on board the "Galena." Capt. Dow returned to his office and Mr. Connor superintended the work of delivering the goods, the steamship's wharves being in the possession of Prestan's officers and men, numbering 100. At 6.30 p. m. Prestan sent an officer and two men to Capt. Dow's office, saying that a movement was going on at the "Galena" as if manning boats, and he was wanted at the wharf. In about half an hour some boats' crews from the "Galena" boarded the "Colon" on her off-shore side, on seeing which Prestan retired from the wharf, taking Capt. Dow and Mr. Connor with him, and confined them in their former quarters a few hours, March 31, when they were

taken to the outposts of the rebel forces beyond Monkey Hill and confined in a cane hut. Not more than half an hour had elapsed when the rebels were surprised by the Government forces, and the prisoners escaped. After traveling five miles on foot, Capt. Dow reached the "Galena" at 7 A. M., and Mr. Connor went on board the "Colon" at 8 A. M. of March 31. Lieut. Judd, showing signs of insanity upon his release, was sent home on the "Colon" to New York, and was cared for at the Naval Hospital. For eighteen months previous to the Isthmian trouble he had been navigating officer of the "Galena." In January, 1885, there were many indications that a civil war was imminent. Political affairs were much disturbed, and there was serious apprehension that the revolutionists from the coast might make a descent upon Colon. At the request of Gen. Santo Domingo Vila, a force of U. S. marines commanded by Capt. Clarke was landed at Colon from the American man-of-war "Alliance" to guard the railroad and canal property there, and to guarantee the integrity of transit. Señor Pedro Prestan took peaceful possession of the city of Colon. On March 16 he sent a notice to Mr. Burt, Superintendent of the Panama Railroad, announcing that he had been proclaimed, by the unanimous voice of his fellow-citizens, the civil and military chief of that department, and had accepted. He also addressed the British consul at Colon, requesting that the arms on board the British steamer "Alene" should be delivered. The arms had not been landed in Cartagena on account of Gaitan's successes. On March 19 an appeal was made by the President of the State, who called a meeting of business men, for funds to be employed solely in maintaining order on the Isthmus. March 20, Prestan believed he could reckon on 413 men, abundant arms, and four cannon. He was now understood to be associated with Gen. Aizpuru, then in the city of Panama, and acting under orders of that commander.

On the resignation of Dr. Pablo Arosemena, President of the State of Panama, which took effect on the 26th, Gen. Gonima assumed command as civil and military chief, and appointed Gen. Buenaventura Correoso his secretary-general. Prestan's next move was to refuse to forward the mails to Cartagena from Panama *via* Colon. On the 26th, Gen. Gonima issued a decree, declaring that the Isthmus would remain neutral in the revolution now taking place in the interior of the republic, and on the same day he assumed the position of civil and military chief of the national army. March 28, by order of Prestan, a notice was posted on the door of the Panama Railroad freight-room, to the effect that a sale of merchandise belonging to Messrs. Zubierta and Pasos would take place that day, until the amount demanded as a forced loan should be paid. The auction-sale began, but some satisfactory arrangement having been made, it was

summarily closed. This is a good example of the system of taxation resorted to, whenever the party out of power desires to take measures to get in. March 30, Prestan, with eighty soldiers, determined to resist the landing of American marines, and said that, if any man-of-war's boat should attempt to land, he would fire into the boat, but, if the captain desired to come on shore, he could do so under a flag of truce. On the afternoon of March 31, fire broke out in the Government building on Bolivar Street, the entrances of which were defended by cannon behind barricades. The wind blew from the north, and all south of this point was destroyed. The Pacific Mail Steamship wharf was saved by a change in the wind. Two steam fire-engines were destroyed. The principal losses were suffered by the railroad and canal companies, and the Royal Mail Company. The Boston Ice Company were heavy losers. The superintendent of the railroad sent a messenger to Gatun (the telegraph wires being cut), for supplies for the poor and needy, and a relief-train with provisions was dispatched, and it was met at Gatun by Mr. Burt, with a guard of marines from the "Galena," who took the car to Colon. Prestan, having been defeated by the Colombian guard under Col. Ulloa and Sergeant-Major Brun, reduced the town to ashes and then fled. Men found in the act of setting fires were summarily shot by the Colombians. American employés gave notice that they would leave the Isthmus unless the United States Government sent a sufficient force to afford protection. When the news reached the Navy Department at Washington, the "Tennessee," the "Alliance," and the "Swatara," were ordered to Colon; and the "Iroquois," the "Wachusett," and the "Shenandoah," to Panama. Marines were forwarded by the passenger-steamer, and three hundred mechanics went down to assist in building up the ruined city. A large part of the men belonging to the Second Battalion of Marines, which arrived from New York April 16, occupied points of importance in and about Colon, and the remainder were stationed at Matachin, and at San Pablo bridge. For the crime of setting fire to the city of Colon, the notorious Haytian Gen. Pautrizelle, and his associate, Cocobolo, were executed May 9, on a gallows built over the railroad-track, opposite the site of the old calaboose. Pautrizelle laid the responsibility for his crime on his superior officers. The incendiaries were arrested by Lieut. Robert M. Doyle, April 1, twenty-four hours after their accomplices had fled with Prestan. They were tried by court-martial, and condemned by the Colombian Government. Gen. Gonima was deposed and banished. Don Pedro Prestan was captured at San Martin in August, and on the 11th arrived at Colon under guard. August 17 a council of war assembled on the spot where the city once stood, to decide the fate of the principal agent in its destruction. At 7.30

P.M., on the evening of the same day, Prestan's death-warrant was signed, and at midday of the 18th he was executed. On account of the political disturbances, an additional tax was levied upon the merchants, making a double contribution for the year.

ASSOCIATIONS FOR THE ADVANCEMENT OF SCIENCE.

American.—The thirty-fifth annual meeting began Aug. 18, 1886, at 10 A. M., in the hall of the High-School in Buffalo, N. Y. The chair was resigned by Prof. H. A. Newton, former President, to Prof. Morse, of Salem, Mass., the President-elect. The following is the list of officers for the meeting: President, Edward S. Morse, Salem, Mass. Vice-Presidents of Sections: Section A. Mathematics and Astronomy, J. W. Gibbs, New Haven, Conn.—B. Physics, C. F. Brackett, Princeton, N. J.—C. Chemistry, H. W. Wiley, Washington, D. C.—D. Mechanical Science, O. Chanute, Kansas City, Mo.—E. Geology and Geography, T. C. Chamberlain, Washington, D. C.—F. Biology, H. C. Bowditch, Boston, Mass.—H. Anthropology, Horatio Hale, Clinton, Can.—I. Economic Science and Statistics, Joseph Cummings, Evanston, Ill.

The meeting was attended by 442 members, and 142 new members were elected; 263 papers were read in the different sections. Several excursions were provided for by the local committee. The Botanical and Entomological Clubs of the Association also held meetings during the convention.

Prof. C. F. Brackett, of Princeton College, Vice-President of the Physical Section, spoke of the seat of electromotive force in the voltaic cell. The question whether the current was due to chemical changes, or to contact of dissimilar substances, was considered, but no satisfactory conclusion was reached.

The Vice-President of the Mechanical Science Section, O. Chanute, Esq., of Kansas City, devoted his address to the progress of mechanical science. He alluded to the slow progress of the steam-engine from the time of Hiero to the days of Watt, and to the latter's improvements, that made it nearly twelve times as economical. He traced Watt's success to his intercourse with scientific men in Glasgow University. He also traced the rapid development of the artificial ice industry, in a practical sense, all included in the past sixteen years.

The vice-president's address in the Anthropological Section was given by Horatio Hale, "On the Origin of Language and Antiquity of Speaking Man." It was based on the language-making instincts of children, instances being given of children's languages, new and peculiar to the two individuals using them. From the structure of ancient skulls an attempt was made to prove that language was a recent and integral acquisition by man, and the theory was broached that it came at once perfect and ready for use. Dr. Daniel G. Brinton, of Philadelphia, read a paper on the Maya and Mexican dialects. Mr. T. C. Mendenhall read a curious

and interesting one on the characteristic curves of composition. Using the numbers of letters in words as abscissæ, and the frequency of occurrence of words of each length as ordinates, he constructed curves from different authors' works. From 10,000 words a regular curve could be obtained. Mrs. Nuttall Pinart spoke of Mexican inscriptions, and created much interest by her treatment of the subject from a phonetic standpoint.

The Biological Section was addressed by its vice-president, Dr. H. P. Bowditch, of Boston, on "What is Nerve-Force?" It is not electrical, as it is too slow in transmission, and the nerves are not insulated. The chemical and the kinetic theories were spoken of, and the latter was favored.

In the Geological Section the interest centered in the excursions to and papers on the Niagara gorge. The conclusions reached in one paper, read by Mr. Woodward, amount in general to this: that the gorge was due to the action of the falls for about 7,000 years, and that its rate of recession averages about $2\frac{4}{5}$ feet per annum. Mr. A. A. Julian read a paper on "The Examination of Building-Stones for Absorption, Freezing, and Fire." Papers were also read by Dr. Newberry, Prof. Claypole, and others.

In the Chemical Section a committee from the Washington Chemical Society, consisting of Dr. A. C. Peale, W. H. Seaman, and C. H. White, suggested the adoption of a uniform scheme for presenting the results of water-analysis. No final action was taken, the subject being referred to a special committee. Miss Helen S. de S. Abbott read a paper on "The Proximate Composition of a Honduras Bark, Chichipati." In it she found a new coloring-matter, which she named *chichipatin*. Prof. H. Carrington Bolton presented a report on "Indexing Chemical Literature." Mr. O. F. Mayberry read a paper on "The Products of the Cowles Smelting-Furnace." One of its products, an alloy of 10 per cent. aluminium and 90 per cent. iron, is used in making "mitis castings," as a vehicle for adding a small percentage of aluminium to iron. Another compound, of silicon, aluminium, and copper, was described, resinous in color, and decomposing water at 100° . Prof. V. C. Vaughan spoke of tyrotoxicon, the poisonous substance sometimes present in cheese, and perhaps also in ice-cream.

In the Physical Section, Prof. John A. Bra-shear described an apparatus for making the sides of glass plates parallel—the gravity parallelogram. The two surfaces of a plate about one quarter of an inch thick could be made so parallel that, if extended, they would not come together for five miles. Prof. W. A. Rogers described a combined yard and meter, to be used by the Department of Standards of the British Board of Trade. The last determination of the meter was given as 39-37012 inches. Prof. J. N. Sanborn read an interest-

ing paper on the relation of dew to soil-moisture. He maintained that dew, as a rule, did not prevent the drying of soil; that it kept drying during heavy dews. The subject of "Dew Formation" was further treated by Major H. E. Alvord. Prof. T. C. Mendenhall spoke on "Electrical Thermometry."

The titles of a few other papers follow: "On Devonian and Carboniferous Fishes," and "On the Cretaceous Flora of North America," J. S. Newberry; "Fossils from the Taconic," J. D. Dana; "Memoranda of a Revision of the North American Violets," Asa Gray; "Work of the United States Department of Agriculture in Economic Ornithology and Mammalogy," and "Do any of Our North American Bats migrate? Evidence in the Affirmative," C. Hart Merriam; "A Trilobite Track illustrating the Mode of Progression of the Trilobite," N. S. Ringueberg; "Synopsis of North American Pines based on Leaf Anatomy," John M. Coulter and J. N. Rose; "On Gold and Silver Ornaments from Florida" and "Gold Ornaments from the United States of Colombia," George F. Kunz.

The following officers were elected for the next meeting: President, S. P. Langley, of Allegheny, Pa.; Vice-Presidents, A. Mathematics and Astronomy, William Ferrel, of Washington, D. C.; B. Physics, William A. Anthony, of Ithaca, N. Y.; C. Chemistry, Albert B. Prescott, of Ann Arbor, Mich.; D. Mechanical Science and Engineering, Eckley B. Coxe, of Drifton, Pa.; E. Geology and Geography, G. K. Gilbert, of Washington, D. C.; F. Biology, W. G. Farlow, of Cambridge, Mass.; H. Anthropology, D. G. Brinton, of Media, Pa.; I. Economic Science and Statistics, Henry E. Alvord, of Amherst, Mass.; Permanent Secretary, F. W. Putnam, of Cambridge, Mass.; General Secretary, W. H. Pettee, of Ann Arbor, Mich.; Assistant-General Secretary, J. C. Arthur, of Geneva, N. Y. Secretaries of the Sections: A. Mathematics and Astronomy, Henry M. Paul, of Washington, D. C.; B. Physics, C. Leo Mee, of Athens, O.; C. Chemistry, C. F. Mayberry, of Cleveland, O.; D. Mechanical Science and Engineering, George M. Bond, of Hartford, Conn.; E. Geology and Geography, T. B. Comstock, of Champaign, Ill.; F. Biology, J. Henry Comstock, of Ithaca, N. Y.; H. Anthropology, F. W. Langdon, of Cincinnati, O.; I. Economic Science and Statistics, W. R. Lazenby, of Columbus, O.; Treasurer, William Lilly, of Mauch Chunk, Pa.

British.—The fifty-sixth annual meeting of the British Association for the Advancement of Science was held at Birmingham, England. The attendance was 2,500. The new public buildings of Birmingham and its leading club-houses were thrown open to the members. It was the fourth Birmingham meeting. The next place for assembling is Manchester, on Aug. 31, 1887. A subsidiary meeting of the Association is to be held in Sydney, New South Wales, in January, 1888, to which a deputation of forty of the most eminent members of the

society is to be sent, at the expense of the colony. The work done is to be reported at the regular 1888 meeting in Bath.

Lord Raleigh, the retiring president, resigned the chair to Sir William Dawson, Principal and Vice-Chancellor of McGill University, Montreal, whose inaugural address began with a tribute to the great advance in English scientific teaching, the Mason College founded in Birmingham by one of her manufacturers, Sir Josiah Mason, being particularly instanced. His guarded allusion to the Darwinian theory was interesting as one of the prominent expressions concerning it given at this meeting. He expressed doubts as to its satisfactory elucidation of proof. The body of the address was devoted to the geology of the North Atlantic, based on the prevalent conception of the earth's constitution as comprising a solid nucleus, covered by a plastic envelope, and that by the crust on which we live. The plastic envelope he held to be in a state of hydro-thermic fusion. Many of his conclusions were seriously modified by the deductions necessarily following on the Charleston earthquake. The day after his address, when the news had reached England, Prof. Dawson himself published the statement.

In Section A, devoted to mathematical and physical science, the president's address was delivered by Prof. G. H. Darwin, "On Estimations of Geologic Time." An interesting synopsis of the different bases for its calculation was given. The erosion of a river-bed in rock went on at the rate of one foot in from 1,000 to 7,000 years. The antiquity of life on the earth, he said, might be placed between thirty-six and ninety-eight million years. Mr. Croll's astronomical determinations of epochs, and Sir James Thomson's atmospheric current determinations, were next considered. Sir William Thompson's three methods of arriving at these factors, by applying the laws of energy, were commended, but only as attempts, not as definite successes. The first one, based on tidal friction, bringing about a retardation of the earth's motion, the second on the secular cooling of the earth, and the third on the loss of radiant energy of the sun, comprise the three. The first conclusion arrived at was that there was no certainty on the subject.

The president's address in Section B, devoted to chemistry, was delivered by Prof. William Crookes, on "The Genesis of Chemical Elements." He began by citing the many eminent authorities who had hoped for the reduction of all elements to one. He compared the elements in their distribution to the members of the animal kingdom, the rarer ones to the rare animals as to the *monotremata*, and hence drew a plea for the evolution of the elements. He suggested the word *protole* (*πρῶτος, first, and ἄλη, stuff*) for the primal element. It compares with the protoplasm of biology. Prof. Emerson Reynolds's ingenious diagram, elucidating

Mendelejeff's law, was commended, and used for the advancement of the speaker's ideas.

The president's address in Section C, devoted to geology, was given by Prof. T. J. Bonney on "The Application of Microscopic Analysis to Geology." It was based largely on the fact that the physical or mechanical changes in particles of agglomerated rocks could be determined by the microscope. In quartzites and sandstones the attrition received by the grains before agglomeration could thus be studied, illustrating their origin, the wind and water action to which they had been subjected, the distance traveled, etc. The rocks of England were considered from this standpoint, and deductions made in conclusion as to points in their physical geology.

The president's address in Section D, devoted to biology, was given by Prof. William Carruthers on "The Relation of Existing Vegetation to Past Flora." The material could not be found in herbariums, as the oldest in existence only dated back to 1646. But specimens from the sepulchres of Egypt collected and prepared by Dr. Schweinfurth had given the finest material for this work. He had found in the wreaths and floral decorations of mummies samples that, treated with hot water, could be perfectly mounted, in some cases giving the color of the original. These were supplemented by specimens from American mounds and Swiss lake-dwellings, and showed no difference of any moment from existing vegetation. Even seeds of weeds that to-day annoyed cultivators were found mixed with wheat and flax-seed from these sources. Hence the conclusion was drawn that species must be dealt with as fixed quantities. The conclusion was in the line of Prof. Dawson's argument.

Section E, devoted to geology, was presided over by Maj.-Gen. Sir F. J. Goldsmid, who in his address made a plea for the more thorough teaching of this science in the schools.

In Section G, devoted to mechanical science, Sir James N. Douglass delivered the president's address, on lighthouses. Some interesting dates were first given, and experiments with different lenses and lights, and the system of photometry, were described. The conclusions definitely reached by the highest authorities, and that might be considered settled, were that for ordinary purposes mineral oil was most suitable and economical, and for headland lights electricity was best.

The president's address in Section H, devoted to anthropology, was delivered by Sir George Campbell. He advocated a more popular study of the science, claiming that popular data were the best, and were superior to craniology and the more abstruse methods. India was mentioned as a field for the study. The good to be done in elevating the race of man by scientific intermingling of different races was spoken of, we having no reason to believe that man has made any advance in the past 4,000 or 5,000 years. Some of the general

race tendencies were considered, as that of the English to misplace the aspirate. A more universal study of practical anthropology was finally recommended.

Among the many numerous reports of committees, those "On Fossil Plants in the Tertiary and Secondary Beds of the United Kingdom," "On the Caves of North Wales," and "On the Depth of Frozen Soil," may be particularly aluded to. Grants aggregating £1,300 were made to the committees for work in the ensuing year.

ASTRONOMICAL PROGRESS AND PHENOMENA.

The progress in astronomy, both theoretical and observational, during the past twelve months, appears to have been equal to that of any recent year.

The Solar Parallax.—The determination of the earth's distance from the sun, the late astronomer royal pronounced the grandest problem of astronomy. It was formerly supposed that the transits of Venus furnished the most trustworthy data; but the results of four transits have been very discordant, and as another will not occur until after the lapse of one hundred and eighteen years, astronomers have turned their attention to other, and, it may be, more exact processes. The determination of the velocity of light gives, perhaps, the most accurate value of the sun's distance of any that have been tried, and, as between that and other methods, there is happily a close agreement, which lends an additional assurance that, within narrow limits of error, the solar distance is known. Adopting $20^{\circ}49'2''$ as the constant of aberration, Prof. Newcomb makes the velocity of light *in vacuo* 299,860 kilometres (= 186,330 miles) a second. Taking the earth's equatorial radius as 3,963.296 miles, gives the solar parallax the value of $8^{\circ}794'$, and the sun's mean distance from the earth, in round numbers, 93,000,000 miles, which is the base-line for all celestial measurements except those relating to the moon. The official solar parallax adopted in England, is $8^{\circ}848''$, being the result of the reduction of all the observations of the transit of Venus of 1874. But from Dr. Gill's observations of Mars, and of some of the asteroids at their oppositions while in perihelion, this parallax is too large; and he strenuously contends for one smaller and more nearly conformable to that obtained by Prof. Newcomb. This corrected value somewhat reduces the supposed solar diameter, making a second of arc on the sun almost exactly 450 miles instead of 460, as resulted from the old assumed distance of 95,000,000 miles. It also diminishes the computed distance of all the stars, and the magnitudes and distances of all the planets from the sun, and of the satellites (except our own), from their primaries.

The Sun.—In all ages, the cause of the sun's heat, light, and actinism, as well as of his spots, has been a fruitful theme for the study of physicists. But few theories to account for

them that met with general acceptance have, until recently, been promulgated. For several years past, Prof. S. P. Langley, director of the observatory at Allegheny, Pa., has been assiduously engaged in the study of solar physics, and, with a new and ingenious instrument of his own invention, called a bolometer, has contributed to science many valuable facts, some of which entirely controvert theories that were considered invulnerable. The results of his investigations have lately been published in vol. xv of the "United States Signal-Service Reports." From observations at the Allegheny Observatory, and on Mount Whitney, he made the solar constant 2.84 calories, which heretofore was considered much less. In 1878, from the summit of Pike's Peak, during the total eclipse of that year, he investigated the solar spectrum, and proved that the rays of the "great group A" were double. He has shown, also, by the bolometer, that the sun's heat has been underestimated by 50 per cent. This wonderfully delicate and sensitive instrument has enabled him to measure with precision the undulations of long wave-lengths below the visible red, to the extent of forty times as great as was known to other solar physicists; and it promises, in his hands, to add much more to our knowledge of the sun and his immediate surroundings.

Eclipses.—In the year 1886 there were two eclipses; and, as is always the case under such circumstances, both were of the sun. The first, occurring on March 5, was annular, and, except across the southern portion of Mexico, its annular phase was in a path wholly oceanic. No effort was made by astronomers to observe it, as such eclipses are nearly barren of valuable results. Now, however, in view of the fact that Dr. Huggins is quite certain of his success in photographing the solar corona in presence of an unclipped sun, and that he would be doubly assured were he permitted to try his experiment when all but its circumferential portion was hidden by the moon, future eclipses of this character must have a value of their own. The second eclipse, which took place on Aug. 28 and 29, was total, and, in respect to duration of totality, was one of the most remarkable of modern times, though, unfortunately, like its predecessor, its path of total eclipse, except near the beginning and ending, was entirely on the ocean. The island of Grenada, in the Caribbean Sea, and one or two other small islands adjacent, were the only places in this hemisphere for observing it to advantage. No efforts were made by American astronomers to secure observations of this rare phenomenon, though the islands were occupied by several parties from Europe. At most of these stations the sky was clear, and important results were achieved, a brief summary of which is subjoined, though, being unofficial, it may require modification. Prof. Tecchini, during totality, observed the prominences with a 6-inch telescope. After to-

tality, he reobserved them with the spectroscope, and found, to his surprise, that, seen under these two different conditions, and by such different methods, they were not the same. Hence we conclude that a spectroscopic observation of an unclipped sun reveals only a part of what is seen with a telescope during an eclipse. This is an important addition to our knowledge of these enormous clouds that are seen during all eclipses floating in the sun's atmosphere, sometimes to a height almost equaling the moon's distance from the earth. About twenty photographs of the corona were secured, on five of which the chromosphere is depicted. The famous line 1474 was seen two minutes before totality. At the close of last year's report, on "Astronomical Progress and Phenomena," no news had been received from the observing parties that went to New Zealand to observe the total eclipse of Sept. 9, 1885. From published reports it does not appear that that eclipse added much to what was already known. The serrated appearance of the corona was, as in other eclipses, a distinctive feature and easily observable. Shortly before totality the rare phenomenon of the projection of the moon's contour on the background of the bright corona was seen.

Naked-Eye View of the Corona.—Mr. Ford having made the improbable statement that the sun's corona could, in a clear sky, and without an eclipse, be distinctly seen from the top of a high mountain with the naked eye, Sig. F. Tecchini, successor of Secchi, at the observatory of the Collegio Romano, has published a confirmation of the strange announcement. From the summit of Mount Etna, on two different days, he observed the phenomenon, which presented the appearance of a white ring, surrounded by a splendid copper-red corona. Probably the spectacle witnessed by both observers was "Bishop's ring," a supposed accompaniment of the recent sky-glow which, at the time, was visible even from the surface of the earth.

Sun-Spots and the Weather.—The influence of the spots on the solar surface upon the weather of our planet still continues to agitate the popular mind. Ever since the invention of the thermometer it has been proved that the annual amount of heat that the earth as a whole receives is a constant quantity, and that it is undeviatingly the same through the periods of sun-spot maxima and minima. Jelenek, of Prague, has tabulated all the observations he could collect in Germany, extending over one hundred years, and after a complete discussion of them has come to the conclusion that there is no correspondence whatever between sun-spots and the weather. Some enthusiasts have even gone so far as to connect these spots with cyclones, rainfalls, financial crises, epidemics, the price of grain, etc. This, though fine theorizing, is not science.

Minor Plants or Asteroids.—Since vol. x of the "Annual Cyclopædia" went to press, fourteen

of these bodies have been discovered. Following is the list, with their numbers, the dates of their discovery, and the names of their discoverers. Nos. 249 and 250 belong to last year's list, but were then unnamed:

No.	Name.	Discoverer.	Date of discovery.
249.....	Ilsa.....		
250.....	Bettina.....	Palisa	Oct. 4, 1885.
251.....	Sophia.....	Palisa	Oct. 27, 1885.
252.....	Clementina.....	Palisa	Nov. 12, 1885.
253.....	Mathilda.....	Palisa	March 31, 1886.
254.....	Augusta.....	Palisa	March 31, 1886.
255.....	Oppavia.....	Palisa	April 3, 1886.
256.....	Unnamed.....	Palisa	April 5, 1886.
257.....	Silesia.....	Palisa	May 4, 1886.
258.....	Tyche.....	Luther	June 23, 1886.
259.....	Abethela.....	Peters	
260.....	Huberta.....	Palisa	Oct. 3, 1886.
261.....	Unnamed.....	Peters	Oct. 31, 1886.
262.....	Unnamed.....	Palisa	Nov. 3, 1886.
263.....	Unnamed.....	Palisa	Nov. 3, 1886.
264.....	Unnamed.....	Peters	Dec. 22, 1886.

Comets.—The following-named comets have been discovered since the last report. They are enumerated, as all comets should be, in the order of their discovery, thus saving much confusion and alteration of numbers.

Name of discoverer.	Date of discovery.
Fabry.....	Dec. 1, 1885.
Barnard.....	Dec. 3, 1885.
Brooks.....	Dec. 26, 1885.
Brooks (1).....	April 27, 1886.
Brooks (2).....	May 1, 1886.
Brooks (3).....	May 22, 1886.
Winnecke's periodic, by Finlay.....	Aug. 1886.
Finlay.....	Sept. 26, 1886.
Barnard.....	Oct. 4, 1886.

The first two were remarkable in respect to the brilliancy to be attained about the time of perihelion passage, but, unfortunately, both at that time were so near the sun as to be seen with difficulty, notwithstanding their intrinsic brightness. According to the ephemeris of Dr. S. Oppenheim, the theoretical brightness of Fabry's comet on May 1, 1886, was 461, its brightness at discovery being taken as unity, and that of Barnard's 371. The prediction that the world was to be treated to the unheard-of spectacle of two comets simultaneously visible, which in splendor would probably surpass any seen in recent times, aroused great curiosity, which was followed by disappointment correspondingly great at the failure of its accomplishment. It is not always that comets appear as bright as theory demands, and, owing to the position relative to the sun and the earth, they sometimes are not seen at all, even with the telescope. For a like reason, a comet that has for its period a mixed number of years, as five and a half, six and a half, etc., can ordinarily be seen only at alternate apparitions. As a late instance, Swift's periodic comet of 1880, whose period is about five and a half years, was seen in 1869, but escaped detection at its approach to perihelion in 1874, and also in 1886. In 1891 it will be on the same side of the sun as the earth, and will, therefore, be in the best position possible for observation and early detection. At its perihelion passage in May, 1886, its theoretical

brightness was only 0.086, that of 1880 equal to unity.

Winnecke's periodic comet was detected by Finlay at the Cape of Good Hope on Aug. 19, 1886. This comet was first seen by Pons on June 12, 1819, and not again observed until rediscovered by Winnecke on March 8, 1858. At its next return it again escaped detection, but was refound by Winnecke in 1869. In 1875 it again eluded observation. This is its fifth observed return. Its periodic time is 5.64 years, subject to some variation by the influence of Jupiter. It is now visible in the evening sky, low in the south, as a very faint nebulous object.

In the last volume, the number of periodic comets was given as sixteen, counting Biela's lost divided comet as two. The later discoveries increase this number to eighteen, viz., Brooks's third and Finlay's, which is a return of De Vico's lost comet of 1844 (?). Of course, Brooks's comet has not been seen to return to perihelion; but there is among astronomers such a close agreement in regard not only to periodicity, but also to its length of period, that there can be little doubt of the fact. And the same may be said of Barnard's, Wolf's, and Denning's comets. The following are the elliptic elements of Brooks's periodic comet, by Dr. S. Oppenheim:

Time of perihelion passage = T	June, 6.815958 (Berlin mean time).
Distance from node to perihelion = $\pi - \Omega$	176° 50' 18.3".
Longitude of node = Ω	62° 5' 56.2".
Inclination = i	13° 23' 48.0".
Logarithm of perihelion distance = q	0.138857
Logarithm of eccentricity = e	0.836962
Logarithm of mean distance = a	0.637824
Period.....	9.05 years.
Motion direct = +	

The elements of Finlay's comet, by Dr. A. Krueger, are :

T = ..	1886, Nov., 22.234427 Berlin mean time.
$\pi - \Omega$ = ..	316° 4' 15.7".
Lon. Ω = ..	59° 11' 49.4".
i = ..	2° 59' 24.6".
Log. a = ..	0.11116
Period.....	5.4 years.
Motion +	

Prof. Boss, who first suggested the identity of Finlay's comet with De Vico's, has computed for it another set of elements, making its period 4.32 years. If this be confirmed, it becomes, except Encke's, the shortest period comet known.

During 1885, seven comets, including one periodic (Tuttle's) were seen and carefully observed; while one, a well-known periodic (Tempel's, 1867, II) was not found. It was a faint object, and unfavorably situated for observation. It has a period of almost exactly six years. Thus far in 1866 (Dec. 5) six have been discovered, including one periodic (Winnecke's), while another periodic (Swift's) has eluded search. For the past two years the number has been above the yearly average. The greatest number ever seen in any calendar year is eight, and that only three times, viz., in 1846, 1858, and 1881. Olbers's comet of

1815, expected now at any time, is the most interesting of those unverified by return. When it appears—and it may be delayed until 1887—it will add another to the list of known peridics, and increase to three the number of those of long-period, viz., Halley's, Pons-Brooks's, and Olbers's, the average period of the three being about 73 years \pm . The next shorter is Tuttle's, of 13 $\frac{1}{4}$ years, and the shortest of all is Encke's of 3.3 years.

Celestial Photography.—The interest attaching to this subject, which has had a trial long enough to establish its merits, is unabated. Since the great and unexpected success of the brothers Henry, in photographing stars and nebulae invisible with the visual telescope, other astronomers have entered upon the work, and still others, armed with telescopes larger than that used by those gentlemen, are preparing to follow. Its scope is wide, and promises rich return.

The detection of a nebula by the telescope, or by photography, in this age of astronomical activity, is an unimportant event, but the finding of one in the Pleiades, in close contact with one of the principal stars of the group, which the closest scrutiny of the great telescopes of the world had failed to reveal, is certainly wonderful, and raises the hope that by this method many of these bodies, otherwise unknowable, may be detected. The priority of this discovery, however, really belongs to Prof. E. C. Pickering, of Harvard College Observatory, as it was on his photographic plate that it was first depicted, though he then—as, at its first appearance, did afterward the Henrys—ascribed it to an accidental stain, or to the intrusion of false light. However, after three exposures, on as many different occasions, when the intruding blur presented itself each time in the same place and with similar contour, they were forced to the conclusion that it was the delineation of a real object. This conclusion has been visually verified by Prof. Struve with the 30-inch refractor, and by others possessing large telescopes. The shape of this nebula is unique. It appears to be spiral, and is almost in contact with Maia, one of the six naked-eye stars of the Pleiades. Merope, also of this constellation, is surrounded with a nebula, which extends to a considerable distance south of the star. The exceedingly faint, nebulous body between Merope and Alcyone, discovered by Mr. Commons, has also been photographed, and its existence, so long doubted, is proved. At the November meeting of the Royal Astronomical Society, Isaac Roberts read a paper on photographing the Pleiades, wherein he says, "After an exposure of 89 minutes, the plate showed clearly that the stars Alcyone, Maia, Electra, and Merope, are surrounded by nebulae." On another plate, exposed for three hours, the nebulosity is seen to extend in streamers and in fleecy masses nearly filling the spaces between the stars named, and in places far beyond. He expresses the opinion that the

entire cluster is situated in one vast nebula. Hyperion, the last-discovered and the faintest satellite of Saturn, and the satellite of Neptune in any part of its orbit presented to us, are somewhat easy subjects for the celestial photographer. The Henry brothers have given to the Paris Academy a single plate, of an hour's exposure with their 13-inch reflector, on which may be counted five thousand stars between the sixth and fifteenth magnitudes. The plate embraces $2^{\circ} 15'$ in right ascension, and 3° in declination of a region near the Milky Way, which is rich in stars. Mr. Roberts has succeeded in greatly reducing the time of exposure, having photographed with his 20-inch reflector small stars in fifteen minutes, while Admiral Mouchez recommends an exposure of from one to three hours, which is largely in accord with the practice of the brothers Henry. One grand desideratum in this unspeakably useful adjunct to astronomical science remains to be achieved, viz., the invention of a process for printing directly from the photographic plates, thus absolutely perfecting cartography. Besides the construction of star-charts, photography opens up an avenue to the discovery of satellites and asteroids, and, not impossibly, a trans-Neptunian planet. That the stars are stationary is well known, and consequently their images on the photographic plates will be points; but the impression of all moving objects will be lines, whose length will depend upon the time of exposure of the plate and the velocity of the object. Should, therefore, the photographer find a short line recorded on his plate, out of the immediate neighborhood of a planet, he may be quite sure that an asteroid (perhaps a new one) has impressed its image there. It is doubtful if the motion of a planet beyond Neptune would be rapid enough to produce a line unless the exposure were greatly prolonged.

Mars may have more moons than Deimos and Phobus; Saturn is supposed to possess three or four undiscovered satellites; and so, also, though too faint for the visual telescope, photography may yet reveal the existence of several more satellites about Uranus and Neptune. It is worthy of notice that M. Gothard's attempt to photograph the Swan nebula was a failure, not a trace being visible; whereas every star, even the faintest, was clearly and accurately revealed. This is remarkable, as the nebula is one of the brightest. On the other hand, the great nebula in Andromeda, and the ring nebula in Lyra, show very strongly with shorter exposure.

A lively controversy has been carried on between Mr. Huggins and Prof. W. H. Pickering, as to the reality of the faint markings found by the former on the plates after his attempts to photograph the corona in full sunshine. The latter, unable to obtain any coronal indications, expressed doubts of the genuineness of those produced by Mr. Huggins. No discussion of the merits of the case can be at-

tempted here; but it may be said that, since the publication of the report of the observers of the eclipse of Aug. 29, 1886, Mr. Huggins himself has grave doubts regarding their reality. If they are real, then during a partial eclipse his plates ought to show the corona partly cut off by the advancing and receding moon. Upon photographs taken at the Cape of Good Hope during the partial phase of the eclipse of Aug. 28, 29, 1886, this cutting off of the corona is not shown. After receiving this announcement, Mr. Huggins, in a published letter, says: "I wish to be the first to make known this untoward result. I greatly regret that a method which seemed to promise so much new knowledge of the corona, would seem to have failed." Mr. Commons, a distinguished celestial photographer, does not share in Mr. Huggins's adverse and perhaps prematurely expressed opinion.

Photometry.—This comparatively new branch of astronomical research was inaugurated in this country by Prof. E. C. Pickering, of Harvard College Observatory, who has prosecuted it with marked success. He uses an instrument of his own invention, called a "meridian photometer." Briefly, it consists of a horizontal telescope having two similar object-glasses of four centimetres aperture, with a right-angle prism in front of each. The north star, which is used as the comparison star for all others, is reflected through one prism, and the star under investigation through the other. By motion given to the prism, the images of the stars are brought close together in the same field of view, for easy comparison and accurate results. In front of the eye-piece is a Nicol prism and a small graduated circle. When the former is rotated from the point where one image disappears, the light of that image will be proportional to the square of the sine of the angle, which may be measured very exactly by an index attached to the graduated circle. The magnitude of the work accomplished by this instrument was not appreciated by astronomers until the publication of Part I of vol. xiv of the annals of that observatory, containing the results of the director's photometric examinations of all naked-eye stars to 30° of south declination, amounting in number to 4,260, representing 94,476 separate comparisons, and involving an amount of labor that none but a participant can estimate. Because of the elegance of its methods and completeness of its work, the inventor was induced to construct a larger photometer with which to observe stars down to the tenth magnitude, and even some of the asteroids, to determine whether they, as some have thought, are variable in brightness. Several astronomers in Europe, notably Rev. Charles Pritchard, D. D., Savilian Professor at Oxford, have done successful work in the same line, though the instrument used, called a wedge photometer, differs from that of American invention. Though not quite equal in accuracy to that of

Harvard, Dr. Pritchard claims for it exactness to the one tenth of a magnitude.

The Biela Star-Shower.—That there is a star-shower, in this age, occurring on the morning of Nov. 14, and that it is associated with a long-period comet (Tempel's) are truths somewhat universally recognized; but that there is also another November shower, sometimes of great brilliancy, which occurs on the evening of the 27th of that month, and is also connected with a comet (Biela's), is not so extensively known. Because of the great shower, observed over more than half of the globe, of Nov. 27, 1872, and also that of 1885, it is appropriate that a brief history of the comet, its rupture, its final loss, and the periodical star-shower resulting from the disintegration, be given. It was first discovered on March 8, 1772, by Montaigne, who did not suspect its periodicity. It was not again seen until Nov. 10, 1805, when it was rediscovered by Pons. Elliptic elements were calculated by Bessel, though it was not associated with any previous comet. On Feb. 27, 1826, Biela discovered a comet for which calculation indicated an elliptic orbit of short period, and, furthermore, that it was identical with the comet of the years 1772 and 1805, and would be again due in 1832, which prediction was verified to the letter, the comet returning to perihelion within twelve hours of its computed time. At its next return it was not found; but in 1846, being well situated for observation, it was early detected and watched with great interest. A few weeks after the discovery, the strangest phenomenon in the annals of cometary astronomy—viz., its disruption into two comets—was witnessed. The cometary pair traveled through space side by side, the distance between them increasing until, on Feb. 9, 1846, a maximum distance of 227,000 miles was reached, which, at its next return in 1852, had grown to 1,250,000 miles. Since then it has not been observed, nor will it probably ever again be seen. Whether the disintegration has been complete, is unknown. Thus the matter rested, and was partly forgotten, until Nov. 27, 1872, when the world, and especially the Eastern Continent, was startled by a star-shower equal to any ever seen in Europe (though far inferior to the great shower observed on this continent on the morning of Nov. 13, 1833). It was soon ascertained that the rain of meteors was caused by the passing of the earth through the *débris* of Biela's comet. In England they fell at the rate of 10,000 an hour, as seen from any one station. The radiant was in Andromeda. On Nov. 27, 1885, the Biela meteoric shower repeated itself; and, as in the case of its predecessor, the Eastern was the favored continent, though the display in this country was sufficient to attract general attention. At the Glasgow Observatory the number of meteors visible during one hour and fifty minutes was estimated at over 23,000. Throughout Europe and Asia it was an exact counterpart of the shower of 1872. The pas-

sage of the earth through the swarm of meteoroids (so called by Prof. Newton), or disintegrated particles of Biela's comet, left behind in its former path around the sun, is the generally conceded cause of this shower. The earth annually passes, on Nov. 27, near the orbit of the comet, and, were the meteoroid particles evenly distributed along its path, as are those of the August 10th shower, there would be an annual Biela shower on that date, but they are so unequally scattered that a great shower can occur only once in thirteen years. The next in order will probably be on Nov. 27, 1898.

Three days before the great Biela shower of Nov. 27, 1872, the writer observed (and it was also seen in many other places) a fine meteoric display of short continuance, whose radiant was in Cassiopeia. Some think it was a shower from the other component of Biela.

The New Star in the Andromeda Nebula.—The sudden appearance of this new star, its gradual decrease in brightness, and final extinction, are fresh in the minds of astronomers. It is not known who first or last saw it; but its disappearance from even the largest telescopes took place in the early spring of 1886. It afforded, while visible, a fruitful theme for discussion and speculation. It will probably never be known whether it was connected with the nebula in whose center it appeared, or merely in alignment with it. It is one of the many curious and inexplicable phenomena that occasionally appear in the heavens, the cause of which astronomers are powerless to explain. It may be a periodical temporary star, and in all coming time its place will be watched for its re-appearance. Though the heavens afford many examples of periodic variable stars, they offer no known precedent of a periodic temporary star.

New Star in Orion.—On the evening of Dec. 13, 1885, Mr. Gore, of Ireland, noticed a sixth-magnitude, reddish star, near the star Chi' (= 54) Orionis, which was not on the charts of Harding, Lalande, Weiss, Birmingham, or the *Durchmusterung*. As he suspected it to be either a new variable or a new star, the discovery was immediately telegraphed to Harvard, where Prof. Pickering at once made photometric examination of it, and promptly replied that it was of the sixth magnitude. By March 1, 1886, it had decreased, according to Pritchard's photometer, to 7·14 magnitude. In April it was rated by several observers at ninth magnitude, and later as low as the twelfth, but now (Dec. 1, 1886) it is as bright as when first discovered, and is specially remarkable as, instead of decreasing to a minimum and there remaining (as did the new star in the Northern Crown, or disappearing entirely, like the new one in Andromeda), it has done neither. Observations continued to near the end of 1886 have convinced astronomers that the star is an ordinary variable, with a period not far from a year. Its light appears to fluctuate from about the fifth magnitude at its maximum to

the twelfth at minimum. It is therefore not a temporary star, as at first supposed, because of its absence from all star-charts. Its spectrum is peculiar; and though astronomers are not agreed as to its precise nature, yet all admit that it belongs to Secchi's third type, of which α Orionis, α Hercules, α Ceti, and β Pegasi are the brightest examples. Its position for January, 1885, was, by meridional observation, R. A. 5^h 47^m 13^s, Dec. + 20° 8' 42". It seems to be a clean-cut star, without haziness, disk, or apparent motion.

Proper Motion of Stars.—The proper motion of the stars, whether in the line of sight or at right-angles to it, is to the astronomer a fascinating subject. Before the distance of any of the stars had been measured, it was the received opinion that the brighter stars were the nearer to our system, and, had they any apparent motion, that it would be largest in these; but both assumptions are erroneous, for, as far as is now known, not a single bright star has a proper motion at right-angles to the line of sight, equal to that of some of the fainter ones. The following list includes a few of the stars whose proper motions are best known. No. 1 has long stood at the head as having the largest proper motion of any known star. The actual velocity in miles depends, of course, upon its distance from us:

NAME OF STAR.	Annual proper motion.	Parallax.
Groombridge, 1830.....	7·05"	0·09"
Lacaille, 9852.....	6·96	0·285
Gould's Sculptor 1584 in hour xxiii.....	6·21	.....
61 Cygni.....	5·23	0·468
Lalande, 21185.....	4·75	0·50
Epsilon Indi.....	4·63	0·22
Lalande, 21238.....	4·40	0·27
5 ^o Eridani.....	4·10	0·166

It will be readily seen that there is but little correspondence between motion and parallax. The absolute motion of No. 1, whose apparent motion is so great with a parallax so small, is altogether incomprehensible. About 5·5° south preceding of 70 Ophiuchi is a star of about the thirteenth magnitude, which has the largest proper motion of any star of that degree of faintness known. Its parallax (and of course its distance) is unknown.

Satellite Orbits.—In Appendix I to vol. xxviii of the "Washington Observations," Prof. Asaph Hall discusses the observations of Oberon and Titania, the two outer satellites of Uranus, made by himself, with the 26-inch refractor of the Naval Observatory, during the years 1875-'76 and 1881-'84. From these he makes the mass of Uranus = $\frac{2}{3} \frac{1}{3} \frac{1}{3}$, that of the sun being equal to 1. Appendix II, of the same volume, contains a similar discussion of his observations of the satellite of Neptune. He finds the mass of that planet to be $\frac{1}{3} \frac{1}{3} \frac{1}{3}$; or, in other words, it would take 19,092 Neptunes to equal the sun's mass. He deduces the value of the mass of Saturn to be $\frac{1}{3} \frac{1}{3} \frac{1}{3}$.

Spectra of the Planets.—The spectra of all the planets, from Mercury to Saturn, are very similar, the differences being, as a rule, too slight for a basis for any opinion as to their physical constitution or the precise nature of their atmospheres. But the latest researches of Huggins and Vogel have shown that the spectrum of Uranus is quite unlike that of the others, and approaches more nearly to that of Neptune. It contains six broad bands, one of them being coincident with $H\beta$, but the identity of the others is doubtful. These observations have shown the erroneousness of Secchi's map of the spectrum of Uranus. Neptune shows eight absorption bands.

Red-Sky Glows.—This beautiful and mysterious phenomenon, that so suddenly manifested itself in the autumn of 1883, still continues. During the months of October and November, 1886, it on several occasions almost equaled the gorgeous displays of 1883-'84. It has, however, differed from those in the non-appearance of the second and third glows, and the partial absence of the counter-glow, which for a long time were three of its distinguishing characteristics. The writer refers to its renewal as seen from western New York. One accompanying feature during its early appearance was the "noon-glow," or "Bishop's ring," which was generally considered to have a connection with the sunset and sunrise phenomena; but this is now doubted by many, for the reason that, for the past eighteen months, nota vestige of it has been observed. This, however, does not, any more than does the absence of the second and third glows, and of the counter-glow (the glow opposite the sun), prove their disunion. Various hypotheses having been advanced to account for these unwanted solar appearances, and as there was no agreement between astronomers and meteorologists regarding them, H. H. Warner, of Rochester, N. Y., offered a prize of \$200 for the best three-thousand word essay on the subject, which was the means of calling out a large number of able papers from all over the world. These essays were submitted to three judges—two astronomers and one meteorologist—who awarded the prize to Prof. K. I. Kiessling, of Hamburg, Germany. Two hundred and fifty dollars and seven gold medals were also given to other contestants. Prof. Kiessling was able to produce in his laboratory all the observed phenomena except the counter-glow. The processes used are described in his papers, which will be found entire, with three of the others that drew cash prizes, in vol. i of the "Publications of the Warner Observatory." Nearly all of the essayists advanced the theory of atmospheric dust as the primary cause, the volcanic eruption of Krakatoa being, by the majority, esteemed the source of this abnormal amount of matter in the atmosphere. The principal objections to this theory are the inadequate quantity of erupted material, and the long persistence of its atmospheric retention. The first is plausible,

but the latter is groundless, as the atmosphere is never free from dust, which is the cause of the ordinary warm and mellow sunsets, of which phenomena of the red glows of the past three years are but an intensification. There is no alternative but to ascribe this dust to volcanic origin; for, had the earth encountered a nebulous body, fully half its circumference must, in a few minutes, have been engulfed. That the dust is long retained, is an argument in its favor. If its source were Krakatoa, then it must have been ejected with a velocity far surpassing that of a rifle-bullet, and thrown to a height of 50 or 75 miles, far above winds and clouds, where perfect quiescence reigns eternal. Just how dust reddens light is not quite clear; but if, as Prof. Kiessling has proved, there can be no condensation of moisture in an atmosphere absolutely free of dust, it follows that the fine dust-particle may gather to itself moisture that perhaps plays an important part in the programme. This experimenter succeeded in reddening light only when the dust-particles are of exactly the same size. Apropos to the assertion that dust, under certain conditions, will redden light, and that without the incasement of each particle in a film of moisture (for we can not suppose that there can be moisture at the height the dust is supposed to reach), M. Janssen, of Meudon, France, has succeeded in condensing carbonic-acid gas to the density of water, and at each compression a cloud of dust was formed which, when a ray of light was passed through it, became of a blood-red color.

Canals of Mars.—The "Bulletin Astronomique" of the Paris Observatory, for July, 1886, contains an interesting article by M. Perrotin on the observation of Martial canals discovered by Schiaparelli with the 8½-inch refractor at Milan Observatory, Italy, during the close approach, in 1877, of Mars to the earth. By the aid of the Henry equatorial of 15-inch aperture, he was able not only to confirm Schiaparelli's discoveries, which astronomers were loath to believe, but also to recognize the canals, even those that the Italian astronomer had declared were double. At the latter time, however, the planet subtended an angle of only 14''. He also observed great temporary changes, and even obscurations of some of the numerous markings which were due, no doubt, to the movements of clouds. M. Perrotin's observations were also confirmed by Mr. Denning, of England, and by observers at Nice.

Jupiter's White and Red Spots.—The great red spot, which for eight years has attracted attention from astronomers, still continues to be faintly visible, and, though its size and shape remain about the same, its brick-red color has greatly faded. From its first discovery until now, its contour has been an oval, whose major axis was 30,000 miles in length, and its minor, 8,300. It undoubtedly appeared somewhat suddenly in 1878, while the planet was lost in the sun's rays, as, when first seen, it was of a magnitude not subsequently much, if

at all, exceeded. It is situated at about 30° south latitude, and has a proper motion of its own, which renders abortive any attempt to compute with desired exactness, the period of Jupiter's rotation. According to the determinations of Prof. Hough, the spot has completed its diurnal rotations, as follows: 1879, in $9^{\text{h}}\ 55^{\text{m}}\ 34\cdot9^{\text{s}}$; 1881, in $9^{\text{h}}\ 55^{\text{m}}\ 37\cdot2^{\text{s}}$; 1883, in $9^{\text{h}}\ 55^{\text{m}}\ 38\cdot4^{\text{s}}$; 1884, in $9^{\text{h}}\ 55^{\text{m}}\ 38\cdot5^{\text{s}}$; 1885, in $9^{\text{h}}\ 55^{\text{m}}\ 40\cdot1^{\text{s}}$. Prof. Young, in 1885, observed in 50° south latitude, or 20° nearer the pole than the great red spot, a white spot, whose rotation period was only $9^{\text{h}}\ 55^{\text{m}}\ 11\cdot14^{\text{s}}$. In the "Sidereal Messenger" for December, 1886, he says: "It is noteworthy that, although this spot was in a higher latitude than the red spot, it yet rotates more rapidly." This is the reverse of all former experiences, and adds still another to the many inexplicable phenomena observed on the giant planet. The tinted spot being of the same color as the belts, would betoken identity of origin, but the white spots must be produced by a different cause. They are generally very small in appearance, and sometimes many are seen simultaneously, quite often in a line like a string of white beads. No satisfactory reason for their formation has been assigned, as also must be said of the colored spots and belts. The large white spot or cloud that manifested itself on the great red spot, covering all but a narrow annular portion around its border, and rendering it almost invisible even through large telescopes, has disappeared, and the spot in its original entirety may now be observed, but, though as bright as in 1884, yet it may easily be overlooked.

Lunar Heat.—For the past two hundred years, astronomers and physicists have endeavored to answer the question, "Does the earth receive any heat from the moon?" Prof. Forbes, in 1888, concentrated moonlight six thousand times, without obtaining any indication of heat, and he hazarded the opinion that it did not amount to $\frac{1}{300,000}$ of a degree centigrade. On the other hand, Prof. Langley, with the sensitive bolometer, concentrating upon it the moon's rays by the 13-inch refractor of the Allegheny Observatory has succeeded in deflecting the galvanometer scale 42 divisions. His final conclusions—the result of the investigations of several years—are thus told by himself: "While we have found abundant evidence of heat from the moon, every method we have tried for determining the character of this heat appears to us inconclusive; and, without questioning that the moon radiates heat earthward from its soil, we have not yet found any experimental means of discriminating with such certainty between this and reflected heat that it is not open to misinterpretation. Whether we do so or not in the future, will probably depend on our ability to measure by some process which will inform us directly of the wavelengths of the heat observed." He inclines to the opinion that the moon is surrounded with a gaseous envelope of extreme tenuity.

Invisible Heat Spectra.—Prof. Langley, in a valuable paper read before the National Academy, gave the results of his investigations of invisible spectra, which he has shown to contain energy heretofore unobserved, because glass is opaque to them, though they will pass through prisms made of rock-salt. Unfortunately, these prisms are difficult to make, and endure but short usage. John A. Brashear, of Allegheny, Pa., after many trials, has succeeded in producing prisms of this material of great perfection, by the use of which Prof. Langley has determined that, at least, the one-hundredth part of the energy of the entire solar spectrum comes from the ultra-violet rays. Up to 1882 all that was certain was wave-lengths of $0\cdot0010$ millimetre; within two years he went down to $0\cdot00027$ millimetre, and there he found that the sun's effect ceased. Afterward, by the use of a large Rowland grating, he made readings down to $0\cdot1$ millimetre, when there was only one vibration in 40 seconds. The shortest sound-wave is 5 millimetres, and only fifty times longer than the longest wave-length of the spectrum according to Langley's determination, which almost bridges the immense gulf between light and heat on the one hand, and sound on the other.

Dark Transits of Jupiter's Satellites.—One of the most inexplicable phenomena observed in the solar system is the occasional transit of two of Jupiter's satellites as dark objects. During their transits, their sunny sides are of course presented to us, and should be seen as brightly illuminated as the face of the planet. The third and fourth satellites often make dark transits, and occasionally the first is seen as a brown object, but the second has never been noticed otherwise than as a bright disk. Several such transits of the fourth satellite, and a very few of the third, have been observed during the current year.

Variable Stars.—In the whole range of physical astronomy there is nothing more mysterious than that a star, which is really a sun like our own, should vary in brightness, and that periodically, as the majority of them do. Upward of 200 of this class of stars are now known, several hundred others are suspected, and every year new ones are observed. As it is a subject well adapted to amateurs (no instrument save an opera-glass being required), a large number of variables will, in the near future, no doubt be added to the list. Ordinarily the light variation is small, while in exceptional cases, from being a bright star at its maximum, it fades away until it becomes invisible even in a powerful telescope. If the list of variable stars be examined, it will appear that there are but very few with periods between seventy-one and one hundred and thirty-five days. It will also show the connection between the periods and the colors of the stars, those of short period being, for the most part, white, and those of long period red or orange-red. The most complete and valuable catalogues of vari-

ables and suspects (the latter published since the issue of last year's "Annual Cyclopaedia") are the work of Mr. J. E. Gore, of Ireland. The suspected variables, 745 in number, are arranged in the order of right ascension, and are accompanied by particular descriptions. He classifies them into five divisions, as follows: Class 1. Temporary stars. Class 2. Stars undergoing larger variations during several months. Class 3. Irregular variables undergoing but slight changes of brightness. Class 4. Variables of short period like β Lyra, δ Cyphæi, etc. Class 5. Stars of the Algol type undergoing periodical changes lasting but a few hours. Some of these he divides into sub-classes. The variable star V Cygni, discovered by Birmingham, has recently been added to the list, and proves to be remarkable, as the following light variation will show: May 13, 1882, = 8 magnitude. Oct. 19, 1882, = $9\frac{1}{2}$ magnitude. May 5, 1883, = $12\frac{1}{2}$ magnitude. May 27, 1883, = 12 magnitude. July 26, 1883, = $8\frac{1}{2}$ magnitude. Sept. 19, 1885, = $11\frac{1}{2}$ magnitude. Sept. 29, 1885, = 11 magnitude. Oct. 26, 1885, = $10\frac{1}{2}$ magnitude. Its color is red, and it is situated $2^{\circ} 51' 42''$ north of α Cygni.

Discovery of Nebulae.—After the discovery of the immense number of nebulae by Sir William Herschel, and later by his son, Sir John Herschel, the subject received little attention until taken up by D'Arrest, Schultz, Lassell, Rosse, and others. Since then, until revived by Messrs. Stephan and Swift, it had fallen into neglect. Their conjoint discoveries amount to over one thousand. It seems useless to speculate upon the origin and design of such immense volumes of matter in comparison with which the space circumscribed by Neptune's orbit is puny. The list of M. Stephan, of Marseilles, France, has been given to the public through various channels, such as the "Astronomische Nachrichten" and the "Monthly Notices of the Royal Astronomical Society of England." A partial list—all he had discovered up to 1873—is to be found in Dreyer's "Supplement to Sir John Herschel's Catalogue of Nebulae." Those discovered by Dr. Swift, at the Warner Observatory, Rochester, N. Y., have been published in five catalogues (one in 1885, and the succeeding four in 1886), of one hundred each, in the "Astronomische Nachrichten." Their positions are approximately given, accompanied by descriptive remarks. But two of the whole number may be seen with a $4\frac{1}{2}$ inch telescope. Most of them are as faint as the faintest of Herschel's Class III, and some are still fainter. These discoveries contradict the heretofore expressed opinion that a quest for new nebulae must result only in time lost. Swift's list affords but few with striking characteristics, as might be expected of objects so excessively faint and difficult to see. Only a few require special mention. One is in Monoceros, R. A. $6^{\text{h}} 24^{\text{m}} 11^{\text{s}}$, Dec. $+5^{\circ} 7' 32''$, close to the cluster HVII, "General Catalogue," 1424. This peculiar object was picked

up many years ago with a $4\frac{1}{2}$ -inch refractor. It is, except the great nebula in Orion, the largest one visible from this latitude, and for a while was thought to be a glow from the above-named cluster. The annexed list comprises all the nebulous stars proper of the five catalogues:

R. A.	Dec.		
h.	m.	s.	"
5 1 5 —	8 20 45	A	bright star in center of circular atmosphere.
6 26 36 +	10 23 15	A	bright star in center of circular atmosphere.
18 9 28 — 19 55	1	A	bright double star in center of circular atmosphere.
18 9 30 — 19 50	1	A	bright double star in center of circular atmosphere.
21 30 45 + 12 15 54		A	bright star in center of circular atmosphere.

The size of these atmospheres is at least ten times that of Neptune's orbit, and probably much greater. The exact centralization of the stars makes it very improbable that their positions are accidental. Two hundred and seventy-three new nebulae have been recently discovered at the Leander McCormick Observatory, University of Virginia, by Prof. Ormond Stone. For a year or two past the six-foot reflector of the Earl of Rosse has been used in the study of photometry and lunar heat instead of in nebular work.

Variability of Nebulae.—A very few nebulae have been suspected of variability, but, in almost every instance, the supposed change has been traced to errors of observation, impurity of the atmosphere, or other causes. There are, however, two cases (both in Taurus) where the evidences of variableness appear to be beyond controversy. The first is the very small nebula about 11° from ϵ Tauri discovered in 1852 by Dr. Hind. It was about 1' in diameter, with a central condensation of light. On Oct. 3, 1861, D'Arrest found that the nebula had totally disappeared—a statement so improbable as to be discredited. It was, in January, 1862, unsuccessfully sought for both by Leverrier at Paris and by Secchi at Rome, though by the following March it had so far increased in brightness as to be easily seen. Another instance has recently come to light of a nebula near ζ Tauri (not Messier I) undergoing changes. It was observed by Chacornac at Paris, near the close of 1885, surrounding a star of the eleventh magnitude, which he and others had repeatedly observed in 1854, and which had also been observed at Markree in 1850, without any apparent nebulosity. In 1856 Chacornac found the nebula very bright, but in 1862 every trace of it had disappeared, nor has it since been seen until recently (in March, 1885), when it was rediscovered by Mr. Tarrant with a 10-inch reflector and verified by Chacornac.

Astronomical Prizes.—Since the "Annual Cyclopaedia" for 1885 went to press, the Lalande prize of 540 francs has been awarded to M. Thollon, for his map of the solar spectrum.

The Valz prize was given to Herr Spörer for his thirty years' work on the physical constitution of the sun. The Rumford medal for 1886 has been awarded to Prof. S. P. Langley, for his researches on the solar spectrum. The Council of the Royal Astronomical Society of England have conferred the society's gold medal upon Profs. Pickering and Pritchard, for their photometric researches. In this country the National Academy of Sciences are in future to award three astronomical prizes for original research. One, founded by the late Prof. James C. Watson, is to be awarded biennially; another, established by the widow of the lamented Dr. Draper, who was a distinguished member of the Academy, is to be bestowed annually for best original research in astronomical physics; and the third was instituted by the late Prof. Lawrence Smith, for original research in meteoric astronomy. The session held on April 20, 1886, was especially distinguished by the conferring of the first medal ever awarded by the Academy, the Draper gold medal of the value of \$200, to Prof. S. P. Langley, for his investigations of the wave-lengths of light in the infrared and ultra-violet portions of the spectrum. The Watson medal has been conferred upon Dr. B. A. Gould, though its actual bestowal will not take place until 1887. The Smith prize has not yet been awarded. The Warner astronomical prizes for discoveries of comets were first offered in 1882, and have since been annually renewed, the last offer dating March 1, 1886, and running to March 1, 1887. The prize as first tendered was \$200 in gold for the discovery of a new comet, but was restricted to the United States and Canada. It is now \$100, but is open to the world. Since the tabulated list of recipients of this prize in the last volume of the "Annual Cyclopaedia," the following have been awarded: To Prof. E. E. Barnard, Nashville, Tenn., \$200; to Mr. W. R. Brooks, Phelps, N. Y., \$200, \$100, \$100, and \$100; to Prof. E. E. Barnard, Nashville, Tenn., \$100; to Mr. W. H. Finlay, Cape of Good Hope, Africa, \$100. Including remunerations to the judges of the astronomical essays, the total amount paid by Mr. Warner is \$4,200, and he has conferred, upon competitors for the "Red-Sunset" prizes, seven gold medals of beautiful design and workmanship, each of \$60 value, and a "Warner prize for scientific discovery," a gold medal also, to Edward D. T., the fourteen-year-old son of Dr. Swift, of Rochester, N. Y., for the discovery of sixteen new nebulae. The astronomical prizes of the French Academy for 1886 were as follows: Lalande prize gold medal, or 450 francs, for most important astronomical discovery; Damoiseau, 10,000 francs for the best work on the theory of Jupiter's satellites, discussing the observations and deducing the constants contained in it, especially that which furnishes a direct determination of the velocity of light; Valz, 460 francs, for the most interesting as-

tronometrical observation made during the year. For the second of these prizes, the Damoiseau, no memoir was presented in 1885, hence the renewal of the offer.

Observatories in the United States.—Within the memory of many not yet old, there was not in the United States a single telescope suitable for making the most common astronomical observation; but now, with commendable pride in the large instruments and observatories, public and private, which are scattered about our country, we may challenge the admiration of the world. The following are a few of the largest refractors of the United States:

Observatory.	Object-glass.	Location.
Lick.....	36 in.	Mt. Hamilton, Cal.
Naval.....	26 in.	Washington, D. C.
Leander McCormick.....	26 in.	University of Virginia, Va.
Halestead.....	23 in.	Princeton, N. J.
Dearborn.....	15½ in.	Chicago, Ill.
Warner.....	16 in.	Rochester, N. Y.
Van Duzee.....	a dialyte	Alexander (formerly at Buffalo), N. Y.
	16 in.	
Washburn.....	15½ in.	Madison, Wis.
Harvard.....	15 in.	Cambridge, Mass.
Litchfield.....	15½ in.	Clinton, N. Y.
Dudley.....	18 in.	Albany, N. Y.

There are, besides, probably one hundred telescopes (both refractors and reflectors) over eight inches in diameter, many of them the property of private individuals, engaged in celestial researches.

The Lick Telescope and Observatory.—The scientific world is much elated over the near completion of this giant telescope, with object-glass a yard in diameter, and of the great tower in which it is to be placed. The completed lenses, mounted temporarily at Cambridgeport, Mass., have already been subjected to several trial tests, in the presence of experts, who unhesitatingly pronounce the disks perfect and the definition satisfactory. Messrs. Warner & Swasey, of Cleveland, Ohio, specialists in this kind of work and distinguished for great ingenuity and mechanical skill, are to have the mounting completed in April, 1887, at a contract price of \$42,000. The following data, received from the gentlemen composing the firm, will therefore be interesting as being authoritative: The telescope is to rest on a cast-iron, rectangular column, whose dimensions at the base are: North and south, 17 feet; east and west, 10 feet; at the top, 4×8 feet. The height of the column from the base is 28 feet, and its weight about 12 tons. On the top of this column rests the head-casting, weighing 3 tons, which contains the bearings of the polar axis. The polar and declination axes of steel are 10 feet long. Their bearings are 10 inches and 12 inches and 9 inches and 10 inches, respectively. Bored through the entire length of each axis is a hole 5 inches in diameter, which not only serves to lighten it but answers other purposes as well. The clamps for slow motion, with slow-motion shaft for R. A., are placed inside the polar axis,

whose outside is so burdened that it is a great advantage to be able to utilize the cavity. Through the hole in the declination-axis, the observer is enabled to read the R. A. circle from the eye-end of the instrument. The diameter of the fine-reading circles is three feet. Coarse-reading circles are also provided. Inside and near the top of the column is the driving-clock, which causes the telescope to follow in R. A. the object under observation, by a tangent-wheel five feet in diameter (instead of a sector), which makes the motion continuous. Surrounding the top of the column, and reached by a spiral stairway from its south side, is a balcony, from which an assistant has access to the driving-clock and may control the telescope in all its motions. Here, too, from a certain position, he can read the circles, both coarse and fine. The driving-clock is of the same construction as those used by Messrs. Warner & Swasey on all of their telescopes. It has a double, conical pendulum, isochronously mounted, and the pendulum-balls are at liberty to take their theoretical positions. The observer from the eye-end of the telescope governs all clamps and slow motions by handles within easy reach, and reads both circles without rising from his seat. No observing-chair, commonly so called, will be used, but the entire floor will be raised or lowered by hydraulic machinery, so that, at whatever altitude observations are being made, the observer sits comfortably in his easy-chair, with a table at his side on which lie his observation-book, etc., while the eye-piece is always at a convenient height. The focal length of the telescope is 56 feet 2 inches; and the tube of sheet-steel, 42 inches in diameter, is suspended from its center, the point of suspension or center of motion being 36 feet from the floor. The cost of the object-glass was \$51,000; cost of the dome, \$56,850; cost of mounting, \$42,000; photographic lens when obtained, \$13,000; total, \$162,850. When completed, it, together with the unexpended balance of the \$700,000 of the original fund, will be turned over by the trustees, of whom Capt. Richard S. Floyd is president, to the regents of the University of California, as the astronomical department of that institution, over which Prof. Edward S. Holden, already at the head of the university, will preside. Under the provisions of the trust, the observers are to receive no salaries until the observatory is completed. As the greater dome could not be built until the focal length of the large objective had been ascertained, the delay of several years in securing the two rough disks from Fiel and Sons, of Paris (costing \$7,000 each), was greatly deplored. They, now polished, and, in their cells weighing 750 pounds, constitute the visual objective. This instrument is not designed for (and, in fact, is worthless for) celestial photography, though the attachment to it of a third lens of the proper curves called a photographic lens corrects it for the actinic rays, but renders it useless for the visual. By attaching and de-

taching this third lens, both purposes are served. The disk received for this lens, condemned by the Clarks as under a strain from imperfect annealing, and liable to break in the working, was, fortunately for the opticians, at the risk of M. Fiel, who ordered the work to proceed. As predicted, the lens, during the process of grinding, broke into three pieces, entailing heavy loss. The photographic lens must, by consequence, be delayed for an indefinite time, greatly to the regret of the director, who desired early to bring the great telescope into photographic work. The Lick Observatory is on the summit of the lowest of the three peaks of Mount Hamilton, of the Coast Range of California, 4,285 feet above the level of the sea, 50 miles south of San Francisco, and, in an air-line, about 40 miles from the Pacific Ocean. The site was chosen by the gentleman whose name it bears, and whose tomb, as well as monument, it is to be, James Lick, who died in 1876. The advantages of this situation can not be overestimated. Prof. Holden assures us that, for six or seven months of the year, every night is clear, while of the remainder, half the nights are good for observation. The instruments now mounted are a 12½-inch and a 6-inch equatorial, a comet-seeker, a 4-inch transit, a 6-inch meridian circle, a Repsold vertical circle, a photo-heliograph, and a heliostat. In addition, there are five clocks, mean time and sidereal, and several chronometers. A carriage-road, very circuitous but of easy grade, twenty miles long, has been constructed at great expense by the county of Santa Clara to the observatory, which obviates the difficulty of ascent and affords a charming drive.

Floating Dome.—The new observatory at Nice, France, has a dome possessing at least one novel and apparently valuable feature. The bottom of the dome is provided with a circular float, which revolves in a narrow annular tank filled with a solution of chloride of magnesium in water. It is a little heavier than water, and will not freeze until a temperature of 40° centigrade below zero is reached. Running wheels are also used, but the pressure on them is slight, and it may be entirely removed by the addition of more water to the tank. Guide-wheels prevent the dome from swaying laterally. The practical working of the great dome of steel, seventy-two feet in diameter and weighing 95 tons, is quite satisfactory. The telescope, a refractor of thirty inches aperture, has now been in use for several months. The object-glass was made by the Henry Brothers of Paris.

Star-Catalogues.—A valuable acquisition to our stock of star-catalogues has just been issued, known as the "Second Armagh Catalogue." It comprises 3,300 stars, mostly Bailey's, reduced to the epoch of 1875. The observations were made by the late Dr. Robinson, and prepared for publication by his successor, Dr. J. L. E. Dreyer. The first four hours of the "Edinburgh Catalogue," constituting vol.

xiv, was published in 1877; but the remaining twenty hours (vol. xv) has, from want of funds, remained unpublished until this year. This latter is a large, heavy volume, and appears to be a useful work. A glance at the two ponderous volumes (xiv and xv) shows the vastness of the labor bestowed upon them. An ephemeris of each of the 3,890 stars, from 1830 to 1890, is given, with critical remarks. "The Annals of Harvard College Observatory," vol. xv, Part I, published during the current year, contains a catalogue of 1,213 stars. The Pulkova Observatory has just issued a catalogue of 3,542 stars observed with the meridian circle during the years 1840 to 1849. It includes all the Bradley stars between the pole and fifteen degrees south declination. Though it has appeared late, it will no doubt be much appreciated by the working astronomer. The Argentine catalogue, giving the mean positions of 32,448 southern stars determined at the Cordoba Observatory, has recently been published by Dr. B. A. Gould.

New Time-Reckoning.—The new reckoning of the astronomical day, recommended by the Washington Conference, will be used at once in the printed results of the meteorological and spectroscopic departments at the Greenwich Observatory; but they advise a postponement of its use, in publishing the astronomical results, and in the Nautical Almanac departments, until 1891, when probably it will have been adopted by most scientific countries.

AUSTRALASIA. British Australasia comprises the colonies in Australia of New South Wales, Victoria, South Australia, and Queensland, all self-governing, Tasmania, and New Zealand, likewise possessing parliamentary institutions, and Western Australia and Fiji, with the islands of Rotumah, which are crown colonies, besides the British possessions in New Guinea. Their combined area is 3,267,750 square miles, their aggregate population 3,697,069.

Australasian Federation.—The British Parliament in 1885 passed a Federal Council Act of Australasia, establishing a Federal Council for the purpose of dealing with such matters of common Australasian interest, in respect to which united action is desirable, as can be dealt with without unduly interfering with the management of the internal affairs of the several colonies by their respective legislatures. A session of the Council shall be held at least once every two years. The colonies possessed of responsible government shall be represented in the Council by two, and the crown colonies by one member each. The Council is given legislative authority in respect to (1) the relations of Australasia with the islands of the Pacific; (2) prevention of the influx of criminals; (3) fisheries beyond territorial limits; (4) the service of civil process outside the jurisdiction of the colony in which it is issued; (5) the enforcement of judgments by courts of law beyond the limits of the colony; (6) the enforcement of criminal process in all the

colonies, and the extradition of offenders, including those who have abandoned their families, and deserters from the military and naval forces of the colonies, or from the imperial forces; (7) the custody of offenders on board ships outside of territorial limits; (8) any matter which the legislatures may refer to the Council; (9) general defenses, quarantine, patents, copyrights, bills of exchange, and promissory notes, uniformity of weights and measures, recognition of marriage or divorce, naturalization, status of joint-stock companies, or any matter with respect to which the legislatures of the several colonies can legislate within their own limits, except that in such matters the acts of the Council shall have force only in such of the colonies as have applied to it for a common law and shall ratify the same acts with respect to the first three categories must receive the approval of the Imperial Government. The governors of any two or more colonies may refer to the Council, on an address from the legislatures, any questions relating to those colonies or their relations with one another. The approval or disapproval by the Imperial Government of any act of the Federal Council shall be signified by the Governor of the colony in which the Council is sitting.

The colonies of Victoria, Queensland, Tasmania, Western Australia, and Fiji only had taken advantage of the act when the Federal Council, representing those colonies, met in Hobart on Jan. 25, 1886. The colonies of New South Wales and New Zealand had taken no steps to join the union, while in South Australia the necessary measure had been delayed in its passage through the Legislature.

The Australian Federal Council.—The Federal Council, which met in Hobart, recommended the fortification of Torres Strait and King George's Sound by combined imperial and colonial action. It passed measures authorizing the service of civil process outside the jurisdiction of the colony issuing it, and providing for the enforcement of judgments of the Supreme Court within the Confederation. It also passed an address to the Queen in relation to the convention with France in regard to the South Sea. After appointing a standing committee to transact business during the recess, the Council adjourned on Feb. 6.

Naval Defenses.—Rear-Admiral Tryon, the British commander-in-chief on the Australian station, presented to a conference of the Premiers of Victoria, New South Wales, and Queensland, held at Sydney in April, 1886, a scheme for a common naval force, in addition to the existing local forces. He proposed that five cruisers of the "Archer" class and some fast sea-going torpedo-boats should be provided, at a cost of £625,000, by the colonies; that the British Admiralty should man them, but that the cost of maintenance, estimated at £150,000 a year, should be borne by the colonies. The colonial governments were willing to un-

dertake the cost of maintenance, and those of Queensland and New South Wales offered to pay interest and depreciation, but they concurred in the opinion that the original cost of building and equipping the new vessels should be borne by the Imperial Government.

The French Occupation of the New Hebrides.—Negotiations respecting the annexation of the New Hebrides Islands to France were carried on between the British and French Governments in March. The French Cabinet offered a pledge that no recidivists should be sent to the islands. The Australian governments protested against allowing France to acquire possession of the New Hebrides. New South Wales declined to join in the protest, on the understanding that France would agree to send no more recidivists to the Pacific islands.

In the early part of May two French vessels were sent from Noumea to land troops on the New Hebrides. The British Government, at the request of the Victorian authorities, ordered two cruisers to those waters. The grounds given for French action were that the natives had massacred French citizens. Troops were landed from the transport "Dives" at Havannah harbor, in the island of Sandwich, and the French flag was hoisted on June 1. Another military station was established at Port Sandwich, on the island of Mallicolo.

The French Government, when interrogated by the British minister in Paris, explained on June 10 that a French company had sent Frenchmen to work in the New Hebrides, and that in March several had been murdered by the inhabitants. The rest called on the company to protect them or to take them away. On the application of the company, the Governor of New Caledonia sent troops to establish temporary posts where French citizens were in danger, and that they would be withdrawn when the emergency had passed, as the French Government had no intention of violating the agreement made with England in 1878 by proceeding to a political occupation of the islands. Orders were sent from France that if the French flag had been raised it should be taken down. The report of the acting British consul in the New Hebrides that the French flag had been raised caused much excitement in Australia and England. The commander of the British ship "Undine" investigated the matter, and reported that there was no formal occupation nor proclamation of a French protectorate.

The concessions that the French Government offered for the cession of the New Hebrides were that no more French criminals were to be deported to the Pacific, and that England should be allowed to annex Rapa. The French minister urged that the New Hebrides belonged to the same geographical group as New Caledonia, that his countrymen had considerable and increasing interests on the islands, and that they needed both as an outlet for emigration and a field for enterprise and as a source from

which to obtain laborers for New Caledonia if the colonization of relapsed criminals on that island were to cease. The Australians, though they have but few settlers and no considerable plantations in the New Hebrides, whereas the French have acquired and cultivated land on the islands, possess the largest share of the trade. The strongest objections to the cession were raised on behalf of the Australian Protestant missionaries, who have stations on fifteen islands, have expended \$800,000 on building churches and maintaining missionaries, and made 8,000 converts. They fear that under French rule Protestant missions would be discouraged through the influence of the Roman Catholic clergy.

On July 25 Lord Roseberry informed M. Waddington that, in view of the almost unanimous objections of the Australian governments, the British Government were unable to accept the conciliatory and amicable arrangement for a French protectorate, or to depart from the agreement by which Great Britain and France bound themselves to respect the independence of the New Hebrides. Meetings were held in Australian cities, and dispatches were sent by the colonial authorities to Downing Street, during the summer and autumn, protesting against the continued occupation of the islands by French troops.

The Germans in the South Sea.—About the middle of February, 1886, the German cruiser "Albatross" visited Bismarck Archipelago and inflicted punishment on the natives of New Ireland, who had murdered two white traders named Carr and Campbell. The Germans pursued the murderers into the interior, destroyed some houses and plantations, and stormed a fortified village. They then sailed to New Britain to collect fines imposed on the natives. A detachment went inland to seize a recalcitrant chief, but did not venture to attack him. Another detachment was set upon by natives, but drove them away with their swift and deadly fire. The town of Kerberkader was bombarded. On the 9th and 10th of March the "Albatross" bombarded some villages on New Ireland. In the various encounters eight of the Germans were wounded and twenty-six natives killed. In June the "Albatross" visited Mallicolo, one of the New Hebrides Islands, and punished the natives for murdering a German and destroying his property.

Annexation of the Kermadec Islands.—The Kermadec group, lying between New Zealand and the Friendly Islands, were annexed by the British corvette "Diamond" on Aug. 1.

The Colonial Exhibition.—In the Indian and Colonial Exhibition, held in London in 1886, the Australian colonies had large and complete displays showing their productions and their progress in the arts, and sent pictures and collections of natural objects to present to the eye the appearance and nature of the country. From Victoria there were manufactures in great variety, besides wool, wine, and other

natural products. South Australia sent fruits, cereals and fodder-plants, wine, and wool. From New South Wales there were examples of pastoral products, including mohair from a new breed of goats, and products of the fisheries and the mineral and other industries of the colony. Queensland exhibited gold, silver, copper, and lead ores, tin, wool, amber, and pearl-shell, quartz-mining machinery in operation, sugar, and coffee. Western Australia was represented by sandal-wood and a variety of fine timbers. New Zealand had an extensive display of wool, grain, minerals, manufactured products, woods, and building materials, and very complete collections exhibiting the scenery, geological features, and natural history of the country, and the life and industries of the aborigines, as well as of the colonists. Before the exhibition closed the Prince of Wales, under whose auspices it had been organized, suggested that a permanent Colonial Institute should be established in London. The Australian colonies offered to contribute jointly £30,000 a year for this object.

The End of the Drought.—After four years of drought that has inflicted severe losses on the Australian stock-growers, and caused stagnation in every branch of trade, the rain began to fall in quantity in July, and the mildness of the winter allowed the grass to spring up everywhere in abundance. New South Wales, Victoria, South Australia, and Queensland each received refreshing rains, which were sufficient to stop the starvation in the flocks and herds.

New South Wales, the oldest of the Australasian colonies, has a Constitution, which vests the legislative power in a Parliament of two houses, the first of which is called the Legislative Council, and consists of not fewer than twenty-one members nominated by the Crown. The second, called the Legislative Assembly, consists of 119 members elected by seventy-two constituencies. The members of either body must be of age, and naturalized subjects of the Queen. The electors have no property qualification, and the votes are taken by secret ballot. The execution is in the hands of the Governor, who is nominated by the Crown. The present Governor is Lord Carrington, who assumed office Dec. 12, 1885. He is advised in the exercise of the executive by a Cabinet of nine ministers who were appointed Feb. 26, 1886, as follows: Premier and Treasurer, Sir P. A. Jennings; Colonial Secretary, G. R. Dibbs; Attorney-General, John Henry Want; Secretary for Lands, Henry Copeland; Secretary for Public Works, W. J. Lyne; Minister of Justice, J. P. Garvan; Minister of Public Instruction, A. Renwick, M. D.; Secretary for Mines, James Fletcher; Postmaster-General, F. B. Sutton.

The colonial naval defense is a voluntary body consisting of 640 officers and men. The military establishment comprises a permanent force of 513 officers and men, 5,185 partially

paid volunteers, and 3,012 on the reserve force; making a total of 8,197. The maintenance of this force cost £188,693 in 1884.

Education is under control of the state, and in 1884 the Department of Instruction expended £797,763, which was a decrease of £72,808 from the expenditure of 1883. The total attendance in the schools of all classes was 202,519 pupils, with 4,860 teachers.

The estimated population in 1884 was 921,263. In 1884 there were 72,486 immigrants and 40,254 emigrants, showing a net gain of 32,232 immigrants. The births in 1884 were 33,946, and deaths 14,220, showing an excess of births over deaths of 19,726; number of marriages, 7,482. The estimated population of Sydney, the capital, in 1885, was 260,000.

The principal source of public revenue was formerly derived from the sale and rent of public lands, which produced more than one half the total annual receipts, but in 1884 these sales were partially stopped on account of a new land act which went into force Jan. 1, 1885. The next most important source of revenue was from customs duties, which yielded one fourth the total annual receipts. The only direct tax is the stamp-tax. The revenue for 1885 was estimated at £8,695,929, and expenditures at £8,420,575. The public debt, which was chiefly incurred for railways, telegraphs, and other reproductive public works, amounted to £31,601,959 on Dec. 31, 1885. The expenditure on railways and telegraphs alone amounted to £22,196,330 at the end of December, 1884.

The total value of imports in 1884 was £22,826,985; of exports, £18,251,506. The staple article of export is wool, of which there were 120,221,143 pounds shipped to the United Kingdom in 1884, valued at £8,403,530. The next most important articles of export to Great Britain are tin, of the value in 1884 of £757,213; copper, of the value of £410,182; tallow, of the value of £380,542; preserved meat, of the value of £165,739.

The total area of the colony is about 207,000,000 acres. Of this, in 1884, there were 141,158,400 acres leased for pastoral purposes; 35,085,504 acres devoted to agricultural purposes; under wheat, 275,250 acres, yielding 4,208,394 bushels in 1883; under maize, 115,560 acres, yielding 2,989,555 bushels; under sugar-cane, 6,997 acres, yielding 21,835,072 pounds of sugar. The vine is cultivated, and in 1885, 441,612 gallons of wine were made.

In March, 1885, New South Wales had 30,379,871 sheep; 1,336,329 horned cattle; 330,603 horses; and 211,656 pigs.

In 1884 the quantity of coal mined was 2,749,109 tons, valued at £1,303,077. There were produced in the colony 105,983 ounces of gold, valued at £390,229. The copper and tin mines are also very valuable, the former producing 7,233 tons of copper in 1884, valued at £363,854; of tin, 5,256 tons were produced, valued at £207,827.

In 1884 there were 1,643 miles of railway in operation, and 2,085 miles under construction. The whole of the lines open were built by the Government, at an expenditure of £21,526,-900. The expenses in 1884 were £1,301,259, while the gross earnings were £2,086,237.

There were, in 1884, 18,681 miles of telegraph-wires, which cost £612,450 to construct. There were 2,334,052 paid messages transmitted in 1884. The post-office of the colony transmitted 42,237,000 letters, and 25,-063,500 newspapers in 1884.

Legislation.—To meet the deficit caused by the falling off of the land revenue, the ministry proposed to levy duties of 5 per cent. ad valorem on all imports, both those paying specific duties and those on the free list, to tax unimproved land exceeding £1,000 in value about $\frac{1}{5}$ per cent., to levy a tax of $3\frac{1}{2}$ per cent. on incomes exceeding £300, and to impose new stamp duties. By various retrenchments the estimates of expenditure were reduced by £500,000, and with the new taxes, expected to yield £1,000,000, the deficit could be removed in two years. To carry out this policy, the ministry resigned on Feb. 18, was reconstructed, dissolved Parliament, and obtained the sanction of the country. The land-tax bill was rejected by the Assembly. That and the income-tax bill were announced by Sir Patrick Jennings as measures that would be again submitted to Parliament in the following session. He said that the deficit at the end of the year would amount to £2,000,000, and that the country had not been in so depressed a state for twenty-two years. The customs duties were passed after a long and animated contest. They were supported by the young and growing Protectionist party in the colony. The Cabinet was reconstructed in view of the popular sentiment in favor of protection, though the Premier has not openly avowed a protective policy. The Opposition leader, Sir Henry Parkes, is the principal champion of free trade, and takes issue with the ministry chiefly on this question.

Victoria.—The Governor, Sir Henry Brougham Loch was appointed April 10, 1884. The Cabinet was composed in the beginning of 1886 as follows: Premier and Treasurer, Duncan Gillies; Chief Secretary, Alfred Deakin; Attorney-General, H. J. Wrixon; Minister of Mines and Agriculture, John James; Commissioner of Public Works and Water Supply, J. Nimmo; Minister of Justice, Henry Cuthbert; Commissioner of Trade and Customs, W. F. Walker; Minister of Public Instruction, Charles H. Pearson; Minister of Defense, James Lorimer; Postmaster-General, F. T. Derham. In August, Duncan Gillies assumed, in addition to his other duties the direction of the Ministry of Mines, replacing John Dow, who had succeeded Mr. James. The land forces in 1884 comprised 3,003 men of all arms.

There is no state church in Victoria. At the last census, 78 per cent. of the population

were Protestants; 24 per cent. Catholics; and half of one per cent. Jews. In 1883-'84 the total cost of public instruction was £642,197. In the same year there were 1,777 state schools, with a total enrollment of 222,428 scholars, instructed by 3,621 teachers. There were in 1885, 655 private schools in Victoria, with 1,634 teachers and attended by 85,115 scholars. At the census of 1881, 92 $\frac{1}{2}$ per cent. of the total population over fifteen years of age were able to read and write.

There are five main sources from which the revenue of Victoria is derived, viz., taxation, land, public works, posts and telegraphs, and railways. In 1883-'84 the total amount raised by taxation was £2,318,520. The total revenue of the colony for the year 1885 was £6,-290,652, while the expenditure for the same year was £6,212,517. The public debt at the end of June, 1885, amounted to £31,757,407, the greater part of which was borrowed for the construction of railways, state school-buildings, and other public works. The revenue for 1885 amounted to £6,250,000, an increase, as compared with the preceding year, of £60,-000. The railroad revenue showed an increase of £73,000.

The colony has an area of 87,884 square miles, of which about 22,000,000 acres are either alienated or in process of alienation. Of the remainder only about 9,000,000 acres are at present suitable for agriculture; mountain forests occupy 12,000,000 acres; land covered with smaller scrub, 11,500,000 acres; state forests, 650,000 acres; timber and other reserves, over 900,000 acres; auriferous land, nearly 1,500,000 acres; and roads, over 1,000,-000 acres. In March, 1885, there were 2,323,-493 acres of land in cultivation in the colony. Of this area 1,096,354 acres were under wheat. The produce of wheat was 10,438,146 bushels, or 9 $\frac{1}{2}$ bushels to the acre, while oats produced nearly 23 $\frac{1}{2}$ bushels to the acre, barley over 17 $\frac{1}{2}$ bushels, potatoes over four tons, and hay over one ton to the acre.

The last census was taken in 1881, when the total population was 862,346, comprising 452,-083 males and 410,263 females. On June 30, 1885, the estimated total population was 973,-403. The total number of Chinese in 1881 was 12,128, and of aborigines 780. In 1884 there were 7,218 marriages, 28,850 births, and 13,-505 deaths. During the same year the total immigration into the colony by sea was 72,202, while the total emigration by sea was 58,061. The population of the principal towns of Victoria was as follows in 1881: Melbourne, 282,-947 (in 1885, 325,000); Ballarat, 41,087; Sandhurst, 38,420.

The total value of the exports of Victoria for the year 1884 was £16,050,465. The staple articles of export were: Wool, to the amount of 119,502,240 pounds, valued at £6,342,877; gold and bullion, of the value of £1,010,295; grain and flour, of the value of £1,762,007. Among the minor articles of export from the

colony are leather and skins, tallow, and preserved and salted provisions.

There were obtained, in Victoria, in 1884, 778,618 ounces of gold, valued at £3,114,472. The total quantity of gold raised from 1851 to 1854 is estimated at 52,992,768 ounces, valued at £211,971,072. The estimated number of miners at work in the gold-fields at the end of 1884 was 28,430, of whom 5,359 were Chinese. The yield of gold in 1885 was 784,000 ounces.

There were 4,020 miles of telegraph lines, comprising 8,055 miles of wire, open at the end of 1884. The revenue from telegraphs was £89,077 in 1884; the number of messages sent, 1,594,296.

The railways in Victoria all belong to the state. At the end of June, 1884, there were 1,624 miles of railway completed, and 71 miles in progress. By the railway construction act of 1884, 62 new lines, of an aggregate length of 1,201 miles, were authorized. The total cost of the whole of the lines, exclusive of the stores and materials on hand at the end of 1884, was over £22,000,000. On this the net profit was 3·98 per cent. The gross receipts in the year 1884 amounted to £2,196,150, the expenditure to £1,335,800, or 60·82 per cent., and the profits to £860,350.

The post-office of the colony forwarded 33,403,884 letters, 5,767,781 packets, and 15,143,067 newspapers in the year 1884. The postal revenue, including the receipts from telegraphs, was £356,817 in 1884.

Legislation.—The closing period of the session of 1885 was marked by an angry assault of the opposition on the Government, attended with all-night debates and unparliamentary recriminations. A reciprocity treaty between Tasmania and Victoria, permitting the free interchange of products of the two colonies containing not more than 5 per cent. of foreign material, is the first substantial step toward intercolonial federation. A factories and shops bill was enacted, requiring shops to close every evening at seven o'clock, except on Saturday. On Feb. 16 the coalition under Duncan Gillies resigned, and Mr. Gillies was charged with the formation of a new ministry. Parliament was dissolved on Feb. 20, and new elections were appointed for March 5. They resulted in the return of 54 Ministerialists, 18 of the Opposition party, and 14 Independents. The most important measure of the session of 1886 was the irrigation bill, passed Sept. 30. It authorizes the Government to borrow £4,000,000 for the construction of works to supply at least 3,242,000 acres of land with water. The proceeds of the loan are to be lent to local trusts, which will construct the works, and have power to levy rates to pay the interest. The rates required are estimated at about eleven shillings per acre of the land supplied. Irrigation-works are expected to be extended over Australia, if found successful in Victoria, and to prevent such droughts as that in which 12,000,000 sheep perished in the single colony of New

South Wales in one year, and thus double or treble the productive capacity of the island-continent. The Assembly placed a duty on woollen goods of 20 per cent.

South Australia.—The ministry, reconstructed on June 7, 1886, is composed as follows: Chief Secretary, J. B. Spence; Colonial Treasurer, John Cox Bray; Commissioner of Public Works, L. L. Furner; Commissioner of Crown Lands, J. H. Howe; Minister of Education, J. A. Cockburn; Attorney-General, John W. Downes. The Governor is Sir William C. F. Robinson, who was appointed November, 1882. The revenue of the colony for 1885 was £2,157,981, derived from customs duties, posts and telegraphs, railways, and territorial receipts. The expenditures for the same year were £2,430,513, the main portion of which is on account of the public works, railways, and interest on the public debt. The estimated revenue for 1886 is £2,344,124, and expenditures £2,407,584. During 1885-'86 an addition of £270,000 is expected from a new tax on land and income, being two years' receipts. Later estimates showed a large deficit, in consequence of which the Government proposed to reduce salaries, but abandoned the intention when the revenue prospects improved. A deficiency of £809,000 was expected. The public debt of the colony, dating from 1852, amounted, on July 1, 1885, to £17,084,200.

The area of the colony is 903,425 square miles. The total population on Dec. 31, 1884, was estimated at 312,781—164,877 males and 147,904 females. During 1884, there were registered 11,847 births, 4,789 deaths, and 2,555 marriages. There were 17,290 immigrants and 16,082 emigrants.

The total value of the exports to various countries, exclusive of bullion and specie, amounted in 1884 to £6,623,704. The imports were valued at £5,749,353. The chief articles of export are: Wool, the exports of which in 1884 amounted to £2,618,626; wheat and flour, £2,491,896; copper and copper-ore, £375,325.

Of the total area, 578,272,000 acres, 10,670,572 acres were alienated at the end of 1884. The total land inclosed amounts to 53,444,411 acres, of which 2,785,490 acres were under cultivation in 1884-'85; of this, 1,942,453 acres were under wheat. The gross produce of wheat in 1884-'85 was 14,621,755 bushels. In 1884, 473,535 gallons of wine were produced, of which 50,080 gallons were exported. The live-stock in 1885 numbered 168,420 horses, 389,720 cattle, and 6,696,406 sheep. In 1884 there were 1,785 pastoral leases, holding 144,723,200 acres.

The colony had 1,060 miles of railway open for traffic, and 262 miles of lines in course of construction, in December, 1884. In the same year the colony had 5,291 miles of telegraph lines in operation, with 9,067 miles of wire. There is also a line running from Adelaide to Port Darwin, across the center of the continent, a distance of 2,000 miles, in connection

with the British Australian cable, forming telegraphic communication with all parts of the world. This line was constructed at the expense of the South Australian Government. In 1834 there were 555 post-offices in the colony; and during 1883 there passed through them 12,679,142 letters and packets, and 6,890,810 newspapers.

Tasmania.—The ministry of Tasmania is composed as follows: Premier and Chief Secretary, Adye Douglas; Treasurer, W. H. Burgess; Attorney-General, J. S. Dodds; Minister of Lands and Works, N. J. Brown. Sir G. C. Strahan was appointed Governor, Dec. 1, 1881.

The area of the colony is estimated at 16,778,000 acres. The estimated population on Dec. 31, 1884, was 130,541. During 1884 there were 4,578 births, 1,990 deaths, and 1,003 marriages. The immigrants in 1884 numbered 14,257; emigrants, 12,524.

The total revenue in 1884 was £549,262; expenditure, £584,047; estimated revenue for 1886, £582,825; expenditure, £586,756.

The total exports in 1884 were valued at £1,475,857, made up of the following items: Wool, £453,567; gold, £132,010; tin, £301,423; timber and bark, £137,586; hops, £35,975; fruits, green and preserved, £170,985. The value of the imports was £1,656,118. Of the total area of the colony, 4,403,888 acres have been sold or granted to settlers, while 1,778,977 acres have been leased as sheep-runs. In 1885 there were 425,845 acres under cultivation. The principal crops are wheat, oats, and barley; hops are also largely grown, and great quantities of fruit, much of which is preserved and exported.

At the end of 1884 there were 215 miles of railway open for traffic, and 159 miles in course of construction. In the same year there was 1,313 miles of telegraph lines in operation.

Queensland.—The Governor, Sir Anthony Musgrave, was appointed in April, 1883. The Executive Council of seven ministers is composed as follows: Premier and Vice-President of the Executive Council, Samuel Walker Griffith; Colonial Treasurer, James Robert Dickson; Postmaster-General, Thomas Macdonald-Paterson; Attorney-General, Arthur Rutledge; Secretary for Public Works, William Miles; Secretary for Public Instruction and Colonial Secretary, Berkeley B. Moreton; Secretary for Public Lands, Charles B. Dutton.

The law making education compulsory is a dead letter. In 1884 there were 558 schools of all grades, employing 1,552 teachers, and having an average attendance of 46,588 scholars. Education cost the Government £1,395,082 in 1884. At the census of 1881, 29·44 per cent. of the population could not read or write.

The public income of the colony in 1884-'85 was £2,720,656, derived chiefly from the following sources: Customs, £937,225; land-rent, £258,909; other rents and sale of lands, £328,422; from railways, £664,535; posts and telegraphs, £169,195. The public expenditure was

£2,819,854, the chief items of which were: Interest on the public debt, £732,185; public instruction, £187,257; administration of public lands, £282,755; cost of working railways, £408,236; posts and telegraphs department, £282,755. The total expenditure on public works was £1,565,028. The estimated revenue for 1885-'86 is £2,982,500; the estimated expenditure, £3,006,214. For 1886-'87 the revenue is estimated at £3,000,000, and the expenditure at £3,069,000. The public debt of the colony amounted, on July 30, 1885, to the sum of £19,070,850.

The area of Queensland is estimated at 668,497 square miles. The population in 1881 was 213,525—125,325 males and 88,200 females. On June 30, 1885, the estimated population was 318,606. In 1884 there were 36,883 immigrants and 18,263 emigrants, showing a net gain of 18,620. There were 10,679 births, 6,861 deaths, and 2,661 marriages in 1884.

The total value of exports in 1884 was £4,673,864, the chief of which were wool, valued at £1,889,504; hides and skins, £109,291; sugar, £454,995. The value of imports into the colony for the same year was £6,381,976.

In 1884, 316,113,920 acres were rented for cattle-runs, and yielded a rental of £254,874; the number of runs was 9,542. The live-stock in 1884 numbered 253,116 horses, 4,266,172 cattle, 9,308,911 sheep, and 51,796 pigs. The total area under cultivation in 1884 was 199,588 acres. The leading grain-crop is maize. The growth of sugar-cane is quite successful, 57,687 acres being under this crop in 1884. There was a sugar-crop in 1886 of over 50,000 tons. A rise in the price of wool helped greatly to revive languishing trade in Queensland, as well as in the other colonies.

The gold product of 1884 was 4,529,280 ounces, valued at £15,852,480.

At the end of 1884 there were 1,207 miles of railway open for traffic, and 746 miles more in course of construction. The railways are in the hands of the Government, and the cost of construction, up to the end of 1884, was £8,631,835. The revenue from railways during 1884 was £630,631, and the expenditure in working them £357,535.

The post-office of the colony in 1884 carried 8,929,835 letters, 7,502,759 newspapers, and 807,177 packets.

There were, at the end of 1884, 6,979 miles of telegraph lines, and 11,300 miles of wire. The number of messages sent in 1884 was 1,012,255. The receipts were £77,118, and the working expenses £85,297.

The Militia.—Under the defense act of 1885 a very complete system of territorial militia has been organized on a plan drawn up by Col. French, who formerly served in the Northwest Provinces of Canada. All the male inhabitants capable of bearing arms, excepting only sons of widows, may be called out in four classes. In the first line come unmarried men and widowers, without children, between the

ages of eighteen and thirty; in the second, the same classes of men from thirty to forty-five years of age; in the third, married men and widowers with children, between eighteen and forty-five years of age; in the fourth, all men between forty-five and sixty. In times of peace the active force is constituted by voluntary enlistment for three years, the privates receiving 6s. a day. The volunteer force more than doubled within a year from the enactment of the new law. A military school for the instruction of officers has been established at Brisbane.

Gold Discoveries.—A gold-field near the head of the Etheridge river has been worked for two years, and new discoveries are being constantly made in that region. The field has an estimated area of 9,760 square miles. Many of the reefs yield from 1 to 6 ounces, some from 10 to 16, and one from 10 to 25 ounces, to the ton of quartz. The average yield in 1885 was 2 oz. 10 dwts. The average yield of the Queensland is higher than that of any other country. The Etheridge field has not been developed to the same extent as the Charters Towers, Gympie, and Ravenswood, on account of the lack of railroad communication.

Western Australia.—The administration is vested in a Governor, assisted by an Executive Council, consisting of the Colonial Secretary, the Attorney-General, the Colonial Treasurer, the Surveyor-General, and the Director of Public Works. The present Governor is Sir Frederick Napier Broome, who was appointed in December, 1882.

The revenue for 1884 was £290,319, and the expenditure £291,306. The revenue for 1885 was estimated at £295,666, and the expenditure at £295,391. The total public debt of the colony at the end of 1885 was £765,000.

The total estimated area of the colony is 975,920 square miles. The results of the census of 1881 gave a total population of 29,708—17,062 males and 12,646 females. In 1884 there were 1,094 births and 717 deaths; 2,434 immigrants and 1,563 emigrants.

The total value of imports in 1884 was £521,167; exports, £405,693. At the end of 1884 there were 79 miles of railway open for traffic, and 48 miles under construction. There were 1,885 miles of telegraph line in the colony in 1884; there is also a line 450 miles in length in course of construction from Geraldton to Port Cossack, which will probably be united by submarine cable with the telegraph system of the world.

The Kimberley Gold-Field.—A remarkably rich gold-field has been discovered in the Kimberley district, situated in the northern part of Western Australia. The diggers who went to the new field in the spring of 1886, brought back nuggets weighing from $2\frac{1}{2}$ to $19\frac{1}{2}$ ounces. Some of them obtained as much as 30 ounces in a single day. The gold is as pure as the best products of the Ballarat or Sandhurst fields. Steamers from Sydney, Melbourne, and

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New Zealand were engaged by July in conveying gold-diggers to the harbor nearest to the diggings, Cambridge Gulf, where a new town had sprung up. The climate is tropical, and so dry that miners must take pack-horses to bring water. The adventurers who first sought the new mines were all provided with a very expensive outfit, but all were rewarded by obtaining a satisfactory amount of metal in the few weeks that their supplies lasted. Old miners predict that the field will prove the richest, and much the most extensive, in Australia. The region is adapted to sheep-raising, but not without water conservation.

New Zealand.—The present Governor, Lieut.-Gen. Sir W. F. Drummond Jervois, was appointed in November, 1882. The list of ministers is as follows: Colonial Treasurer, Postmaster-General, Commissioner of Telegraphs, and Commissioner of Stamp Duties; Sir Julius Vogel; Premier, Attorney-General, and Minister of Education, Robert Stout; Minister of Public Works, Edward Richardson; Native Minister, Minister of Defense, and Minister of Lands, John Ballance; Minister of Justice, Joseph Augustus Tole; Colonial Secretary, Patrick A. Buckley; Minister of Mines and of Marine Department, William J. M. Larnach.

The legislative power is vested in the Legislative Council, composed of fifty-four members nominated by the Crown for life, and the House of Representatives, with ninety-five members, elected by the people for three years. Four are aborigines, elected by the natives.

The colonial troops consist of a voluntary force of 8,177 men of all ranks, besides a permanent armed constabulary force of 450 officers and men. The approaches to the principal ports of the colony are defended by batteries of heavy ordnance, supplemented by torpedo-boats and submarine mines.

In New Zealand there were, in 1884, 1,334 schools of all kinds, employing 3,188 teachers, and having an average attendance of 113,481 scholars. The amount expended on education in 1884-'85 was £416,127. Education is obligatory, and in the public primary schools free and secular.

The area of New Zealand is estimated at 66,779,092 acres. Up to the end of 1884 17,692,511 acres had been alienated. The population on June 30, 1885, was, including Maoris, 616,229. The number of marriages in 1884 was 3,800; births, 19,846; and deaths, 5,740. The net immigration in 1884 was 9,321. The population of New Zealand is increasing more rapidly than that of any other of the Australian colonies.

The chief source of the ordinary revenue is from customs, £1,411,102 in 1884-'85; receipts from railways, £1,050,742; stamps, £510,018; property-tax, £145,379; telegraphs, £95,757; and excise on beer, £55,714. The territorial revenue includes receipts from sales of crown lands, from depasturing licenses and assessments, and also from mining licenses, and the

duty on gold obtained in the colony. The total revenue in 1884-'85 was £3,730,463. The chief items of expenditure were for public debt, £1,570,988; public works, £714,845; education, £334,196; posts, £255,160; defense, £182,-586. The estimated revenue for 1885-'86 amounts to £4,110,000, and expenditures to £4,070,000, leaving a surplus of £42,000. The total amount expended on railways, construction of roads, immigration, and public works of all kinds, from 1870 to 1885, was £21,800,-334. In March, 1885, the total public debt was £33,691,022. A new loan of £1,500,000 for railroads was issued in 1886.

The total imports for 1884 were £7,663,888, 64 per cent. of which were from the United Kingdom. The exports were valued at £7,091,-667, of which 73 per cent. went to Great Britain. The leading imports in 1884 were: Iron and steel goods, £1,215,457; apparel of all kinds and materials, £1,819,678; sugar, £705,-684; wines, beer, and spirits, £386,404; tea, £180,301. The leading exports in 1884 were: Wool, 81,139,028 pounds, valued in New Zealand at £3,267,527; grain and pulse and flour, £801,271; gold, £988,953; kauri-gum, £342,-151; frozen meat, £345,090; tallow, £234,-829; timber, £152,319; sheep and rabbit skins, £151,692; live-stock, £71,174; butter and cheese, £91,667; preserved meats, £59,224.

In 1884, 852 vessels, of 529,188 tons, were entered at the ports of New Zealand, and 872, of 534,242 tons, cleared. All but 53 vessels of the former and 59 of the latter belonged to Britain and her colonies.

In 1881 the number of occupied holdings was 30,832, comprising 10,309,170 acres of freehold and 4,827,727 acres of leasehold property. The total acreage under crops in 1885 was 6,550,399, of which 664,540 were under grain; 80 per cent. of the total acreage is under grass. In 1885 the total production of wheat was 6,866,777 bushels, and of oats 12,360,449 bushels. The bulk of the gold-mining is on government land, and in 1884 the gold export amounted to 246,393 ounces, valued at 988,953. The total value of the gold exported from the colony up to March 31, 1885, was £41,634,507.

On Dec. 31, 1884, there were 1,570 miles of railway open for traffic in New Zealand. For the year ending March 31, 1885, the surplus receipts were £355,685. The total expenditure on construction of all the Government lines to March 31, 1885, had amounted to £12,721,035. When the whole of the projected systems of railways are completed, they will have cost, with their equipments, about £16,000,000. The colony had, on Jan. 1, 1885, 10,474 miles of telegraph wire in operation. The total number of telegrams dispatched in 1884 was 1,654,305, for which £80,626 were received. The post-office in 1884 transmitted 35,257,846 letters and 14,-093,742 newspapers.

The Maoris.—The Premier at the opening of

Parliament stated that the relations with the natives were never better, and that large blocks of land were being transferred to Europeans. In July a serious disturbance occurred near Hawera, when 500 Maori men and women made an incursion into lands belonging to Englishmen, and began plowing and erecting buildings. The Maoris were dispersed by the police, who arrested several chiefs, and an order was issued for the arrest of Te Whiti, the champion of native rights, as the instigator of the trouble. Te Whiti, Tito Kowaro, and other chiefs who were arrested, were detained in jail till October, and then sentenced to fines and short terms of imprisonment.

Volcanic Eruption.—An eruption of Mount Tarawera, on the east side of Tarawera Lake, in the northern part of the North Island, which occurred in the beginning of June, disturbed the surface of the country for many miles around. Whole villages were buried under the falling matter, consisting of stones, ashes, and boiling mud. The eruption was accompanied by violent earthquakes. The Tarawera volcano, which first burst into activity on the morning of June 11, subsided gradually and became entirely quiet; but several active craterers were formed on Mount Rotomahana, and the pink and white terraces near that mountain, which had been the chief beauty of that picturesque region, disappeared. The disturbances extended over sixty square miles. Hundreds of geysers, in addition to those previously existing, broke out into intermittent activity. The township of Wairoa was buried in mud, several Maori settlements were destroyed, and over 100 persons known to be killed, among them six Europeans. The scene of the disturbance was the Hot Lakes district, 40 miles inland from the Bay of Plenty on the east coast. This district has been a resort for tourists on account of its boiling fountains, terraces of glistening silica, and other natural beauties, and for invalids on account of the medicinal virtues of the hot baths. It was feared that the fine volcanic dust that covered the face of the country over a large part of the province of Auckland had ruined the pastures; but after the rain had washed the dust into the soil it was found that vegetation was quickened. Experiments established the fact that plants would germinate and grow vigorously in the pure dust.

AUSTRIA-HUNGARY, a dual monarchy in Central Europe, composed of the Federal Empire of Austria or Cisleithania and the Kingdom of Hungary or Transleithania. The two monarchies are united in the person of the sovereign, and in a common military and naval system and a common diplomacy. There is a ministry for common affairs, which are subject to legislative control and action through delegations from the legislative bodies of the two kingdoms. The delegation from each Parliament consists of 60 members, and when any members are from any cause absent from one, a like num-

ber is eliminated by lot from the other. All measures are presented for action to each delegation separately; and if their decisions diverge, they meet to vote jointly, but without discussion. Franz Josef I succeeded his uncle, Ferdinand I, as Emperor of Austria, upon the abdication of the latter, Dec. 2, 1848; and after the restoration of the Hungarian Constitution, June 8, 1867, was crowned King of Hungary. The heir-apparent is the Archduke Rudolph, born in 1858, only son of the Emperor. The Minister of Foreign Affairs and of the Imperial House for the whole Empire is Count G. Károlyi de Köröspatak, appointed Nov. 21, 1881; the Minister of War, Lieut. Field-Marshal Count Bylandt-Rheydt, appointed June 21, 1876; the Minister of Finance, Benjamin de Kallay, appointed June 4, 1882.

Area and Population.—The total area of the Austro-Hungarian monarchy is 240,942 square miles. The population in 1880 was 37,885,226. The population of Austria, with an area of 115,903 square miles, was 22,144,244, or 191 per square mile; that of Hungary, 125,039 square miles in extent, 15,642,102, or 135 per square mile. The increase in eleven years in Austria was 8·5 per cent.; in Hungary, 1·24. In the Cisleithan Kingdom there were 10,819,737 males and 11,324,507 females; in Hungary, 7,702,810 males and 7,939,192 females.

The number of births in Austria in 1884 was 878,321; of deaths, 666,523; of marriages, 179,171; surplus of births over deaths, 211,798. In 1885 there were only 860,663 births, and 175,233 marriages, while the number of deaths was 689,493. In Hungary the births in 1883 numbered 730,934; the deaths, 526,991; the marriages, 167,609; surplus of births over deaths, 203,943.

The Empire of Austria embraces within its borders no less than 17 different principalities: The Archduchy of Austria below the Enns; the Archduchy of Austria above the Enns; Duchy of Salzburg; Duchy of Styria; Duchy of Carinthia; Duchy of Carniola; city of Trieste and its domain; Margraviate of Görz and Gradisca; Margraviate of Istria; Margraviate of Tyrol; Dependency of Vorarlberg; Kingdom of Bohemia; Margraviate of Moravia; Duchy of Silesia; Kingdom of Galicia; Kingdom of Dalmatia; Duchy of Bukowina. Among all these kingdoms, duchies, margravias, and principalities, but two are inhabited exclusively by one nationality, viz., Upper Austria and Salzburg, which are peopled by Germans. The numbers speaking the various languages were in 1880 as follow: German, 8,006,176; Bohemian, Moravian, and Slovak, 5,183,596; Polish, 3,238,534; Ruthenian, 2,792,677; Slovene, 1,140,508; Servian and Croatian, 563,371, Latin, 668,653; Roumanian, 190,799; Magyar, 9,887.

In Transleithania the division was as follows: Magyar, 6,206,872; Roumanian, 2,325,838; Servian and Croatian, 2,325,747; German, 1,882,371; Bohemian, Moravian, and Slovak, 1,799,563; Ruthenian, 345,187; Wendi, 83,150;

Gypsies, 79,393; Armenian, 3,523; other native languages, 33,668; foreign languages, 56,892; infants, 499,898.

The population of the cities with over 75,000 inhabitants in Austria-Hungary was, in 1880, as follows: Vienna, including suburbs, 1,103,857; Buda-Pesth, 360,551; Prague, 162,323; Trieste, 144,844; Lemberg, 109,746; Grätz, 97,791; Brunn, 82,660.

Education.—There are eight universities in Austria, with 796 teachers and 12,952 students in 1885. The number of technical high-schools in 1883 was six, with 337 teachers and 2,578 students; there were 11 special high-schools, with 215 teachers and 2,571 students; 49 theological schools, with 245 teachers and 1,740 students; 166 gymnasia, with 8,270 teachers and 51,893 pupils; 80 Realschulen, with 1,419 teachers and 15,236 pupils; 70 normal schools, with 978 teachers and 8,792 pupils; 1,212 special institutes, public and private, with 6,075 teachers and 84,816 pupils; 15,944 public elementary schools, with 52,314 teachers and 2,557,749 pupils; and 1,127 private elementary schools, with 85,166 pupils. Of the children of school age in 1883, 84·9 per cent. were attending school. German was spoken in 6,733 of the public elementary schools; in 4,018, Czech; in 3,777, other Slav languages; in 868, Italian; in 53, Roumanian; in 3, Magyar; in 492, more than one language. In Hungary, 83·3 per cent. of the children of school age were in school in 1883. In the two Hungarian universities in 1885 there were 211 teachers and 4,181 students. There were 13 law-schools, with 798 students; 56 theological schools, with 1,946 students; 163 gymnasia, with 38,106 scholars; 33 Realschulen, with 6,081 scholars; 73 normal schools, with 4,003 scholars; and 110 special institutes, including music-schools, with 6,899 scholars. The number of elementary schools in 1882 was 15,993, the number of teachers 22,396, the number of pupils 1,304,738. There were besides 367,094 scholars in schools of a higher grade. In 7,938 of the elementary schools the language is Magyar; in 4,801, other languages; in 2,766, more than one language.

Dr. Gautsch, the new Minister of Education in Austria, has instituted reforms in the curriculum of the universities which will give the first place in the examinations to practical studies, and relegate abstract philosophy to a subordinate rank. The study of constitutional law is to be made in the legal course.

Commerce and Industry.—The Austro-Hungarian Customs Union embraces all the lands of the two monarchies except the province of Dalmatia, with its two free ports, Trieste and Fiume. The total value of imports in 1884 was 612,900,000 florins, against 624,890,339 florins in 1883; the value of exports 708,700,000 florins, against 749,920,513 florins. The exports over the German frontier in 1883 amounted to 457,410,860 florins; those by way of Trieste to 97,424,420; those over the Italian frontier to 56,160,410; over the Roumanian frontier, 48,757,-

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060; through other seaports besides Trieste, 38,355,380; across the frontier of Russia, 28,318,910; of Servia, 17,229,920; of Switzerland, 5,992,790; of Turkey, 262,280; of Montenegro, 8,440 florins. The leading classes of articles exported in 1883 were as follow:

ARTICLES.	Value, in Florins.
Cereals.....	120,778,700
Textile manufactures and materials.....	111,088,700
Animals and animal produce.....	97,083,930
Wood, coal, and turf.....	77,959,020
Sugar.....	70,173,950
Hardware.....	41,776,120
Glassware and crockery.....	27,973,020
Beverages.....	26,205,640
Fruit and vegetables.....	23,879,940
Leather and leather manufactures.....	21,212,410
Wooden ware.....	17,609,620
Iron and manufactures of iron.....	11,757,990

The value of the gold and silver exported in 1883 was 4,154,080 florins.

The value of Austrian manufactured products in 1880 was estimated at \$500,000,000. The quantities and values of the principal mineral products in 1884 were as follow:

PRODUCTS.	Tons.	Florins.
Salt.....	157,843	22,236,240
Coal.....	10,253,577	40,859,486
Silver-ore.....	7,721	8,020,365
Iron-ore.....	580,561	2,617,558
Lead-ore.....	9,497	1,071,266
Other minerals.....	109,363	2,835,467
Total.....	11,118,552	72,140,082

The value of pig-iron produced in Austrian furnaces in 1884 was 23,723,730 florins; the total value of all metals produced, 31,733,183 florins. The production of pig-iron in Austria-Hungary increased by rapid stages from about 400,000 tons in 1879 to 780,000 tons in 1884, but, owing to over-supply, fell off to 760,000 tons in 1885. The iron-masters hoped in the new ten years' treaty to secure an advance of 50 per cent. in the iron duties, which would cause the already greatly reduced importations to cease altogether.

Agriculture.—The productive area in Austria proper in 1883 was 56,697,000 acres, divided as follows: Arable, 25,700,000 acres; meadow, 7,476,000; vineyards, 521,000; forests, 23,000,-000. About 60 per cent. of the population depend on agriculture. The number of land-owners paying 1,000 florins of land tax and above in a single district increased from 1,110 to 1,133 between 1880 and 1883.

Of the total cultivable area of Hungary, 52,-800,000 acres were in 1883 devoted to agriculture, grass, and pasture, 1,062,500 to vineyards, and the remainder to woods and forests. The number of properties exceeding 14,200 acres was 231; between 1,420 and 14,200 acres, 4,695; between 285 and 1,420 acres, 13,-748; between 42 and 285 acres, 118,981; between 7 and 42 acres, 2,348,610.

Railroads.—There were, on Jan. 1, 1885, in the Cisleithan monarchy, 2,177 miles of state

railroads, 929 miles of companies' lines operated by the Government, 52 miles of Government lines worked by companies, and 5,031 miles owned and worked by companies; total, 8,189 miles. In the Hungarian monarchy the state operated 4,452 miles of its own and 1,209 miles of companies' lines, and companies, 52 miles belonging to the state, and 7,888 miles of their own lines. There were 568 miles of new roads constructed during 1884 by the Austrian Government, which sets apart 12,885,000 florins in the budget of 1885-'86 for the building of additional railroads during the year. In Hungary the Government has diminished the rate of contraction for the present, in order to avoid budget deficiencies.

Telegraphs.—The length of telegraph lines in Austria in 1884 was 23,630 miles, of wires 61,310 miles; the number of messages transmitted, 6,683,056. The receipts in 1883 were 4,053,360 florins; expenditures, 3,646,400.

In Hungary there were 10,082 miles of lines, and 36,755 miles of line in 1884; number of messages, 3,487,838; receipts in 1883, 1,766,250 florins; expenditures, 1,759,850 florins.

In Bosnia and Herzegovina there were 1,730 miles in 1884; messages in 1883, 296,962.

Navigation.—The merchant marine in 1885 consisted of 62 steamers in the foreign trade, tonnage, 67,412; 76 coasting steamers, tonnage, 13,506; and 9,068 sail-vessels of all kinds, tonnage, 243,540. The fleet of the subsidized Austro-Hungarian Lloyd line of steamers, trading between Trieste and the East through the Suez Canal, comprises 84 vessels, of 69,818 tons.

There were 62,045 vessels, of 7,657,317 tons, entered, and 61,970 vessels, of 7,641,314 tons, cleared at Austro-Hungarian ports in 1883. Of the total tonnage, 87 per cent. was Austrian.

The Post-Office.—The Austrian post-office in 1883 forwarded 335,633,500 letters and post-cards, 47,986,400 circulars and patterns, 81,-302,500 newspapers, and 33,927,000 parcels. The receipts were 20,020,730 florins; expenditures, 16,473,730 florins.

The Hungarian post-office forwarded 104,-501,260 letters and post-cards, 14,182,086 circulars and patterns, 43,118,002 newspapers, and 10,576,580 parcels. Receipts, 7,908,400; expenditures, 6,051,860 florins.

The Army.—Military service is universal and obligatory. The term of service is three years with the colors, seven in the reserve, and two in the Landwehr. The empire is divided into 102 recruiting districts, each furnishing a regiment of infantry. Tyrol and Vorarlberg form a separate district, and raise the regiment of Tyrolean Jägers. The Austrian military system has been introduced in the occupied provinces, which are organized in four recruiting districts separate from the others. The Adriatic coast provinces are also separately organized, and furnish the naval recruits. The strength of the Austro-Hungarian army in 1885 was as follows:

DESCRIPTION OF TROOPS.		DESCRIPTION OF DEBT.		
		Peace footing.	War footing.	Florins.
102 regiments of infantry.....	150,992	501,228		
1 regiment of Tyrolean Jägers.....	4,007	12,339		
32 battalions of Jägers.....	12,800	39,329		
41 regiments of cavalry.....	43,747	68,919		
18 regiments of field artillery.....	21,388	64,166		
12 battalions of fortress artillery.....	7,236	18,528		
2 regiments of engineers.....	5,258	14,137		
1 regiment of pioneers.....	2,748	7,273		
1 railway and telegraph regiment.....	887	4,769		
Train.....	2,607	88,917		
Staff and special services.....	15,859	41,254		
Total.....	284,495	1,071,084		
			Total.....	8,455,010,765
Austrian Landwehr.....	3,522	132,032		
Hungarian Honvéd.....	7,540	127,234		
Gendarmerie.....	6,254	6,164		
Total.....	267,179	805,604		

The active army and the reserves are common and are under the control of the Austro-Hungarian Minister of War. The Austrian Landwehr and the Honvéd are separate organizations, controlled by the Ministers of National Defense in the two monarchies; but all orders relating to the concentration of troops must proceed from the Emperor-King.

The Government is providing the Austro-Hungarian army with the new Mannlycher repeating-rifle, with which several corps are being armed. There have 600,000 of them been ordered, to be delivered in five years, at a cost of 35 florins apiece.

The Navy.—The Austro-Hungarian navy in 1885 consisted of 10 iron-clads, 2 frigates, 5 corvettes, 6 torpedo-vessels, 14 coast-guards, 5 transports, 2 monitors, and 18 torpedo-boats. The most powerful vessel was the Tegetthoff, with 14-inch armor, six 27-ton guns, and 6,500 horse-power. Two formidable armored vessels were under construction. Of these, the Kronprinz Erzherzog Rudolf, a barbette turret-ship, is intended to have 12-inch steel-plates and a speed of 16 to 17 knots. The other will be a barbette belted ship with 9-inch armor.

Finances.—The estimated expenditure for the whole empire in 1844 was 118,306,910 florins; for 1885, 119,453,510 florins. The budget estimates for 1886 make the total revenue 119,724,748 florins, of which 25,914,132 florins come from the surplus from customs, 90,643,089 from the contributions by the two parts of the empire, and the remainder from the ministries. The expenditures are set down in the budget as follows, in florins:

EXPENDITURES.	Ordinary.	Extra- ordinary.	Total.
Ministry of Foreign Affairs.....	4,404,400	45,400	4,449,800
Army.....	98,680,121	3,272,503	101,952,924
Navy.....	9,025,840	2,168,970	11,194,810
Ministry of Finance.....	1,995,680	1,050	1,996,730
Board of Control.....	130,484	.....	130,484
Total.....	114,236,525	5,488,223	119,724,748

The debt of the empire stood at the end of June, 1885, as follows:

	General debt :	
	Consolidated debt.....	2,656,124,597
	Floating debt.....	59,875,555
	Capitalized annuities.....	13,917,198
Austrian special debt :		
	Consolidated debt.....	549,867,252
	Floating debt.....	1,487,737
	Land-redemption loans.....	123,738,626
Total		8,455,010,765

The main burden of the general debt, contracted before 1868, falls upon Austria, the Hungarian share amounting to only about 30,000,000 florins per annum. The Austrian debt, with the share of Hungary deducted, but with the addition of 358,000,000 florins of paper money, amounts to about 3,250,000,000 florins. Hungary owes, besides the common debt, only 127,158,000 florins.

The Occupied Provinces.—The area of Bosnia and Herzegovina, with the Sanjak of Novi-Bazar, Turkish provinces placed under Austro-Hungarian administration by the Treaty of Berlin, is 24,247 square miles; the population, 1,504,091. Of the population, 492,710 are Mohammedans, showing an increase of 44,000 since 1879; 571,250 are of the Orthodox Greek faith; 265,788 Roman Catholics; 5,805 Jews, and the remainder of other faiths.

The cost of administration is estimated for 1886 at 8,453,535 florins; the cost of the army of occupation at 5,835,900 florins.

The Austrian administration has wrought many improvements in the material condition of the country. Roads have been built, and railroads in the chief lines of communication; a system of jurisprudence has been introduced, and the legal equality of the different confessions established; the productive capacity of the land has been increased; yet the Imperial Government has totally failed to win the attachment of the people. At first, the Roman Catholics in the provinces were favored, and the propagandist designs of the Austrian priesthood promoted by the officials. This error was corrected, but the Moslem begs or landlords were then taken into favor. There was no attempt to solve the agrarian question, which under Turkish rule constituted the chief difficulty. The landlords still obtained their third part of the produce, which was collected through the Government officers in a less capricious and oppressive way than formerly, but more thoroughly. The tithes due to the Government were still collected, and in addition there were new imposts and monopolies, so that the taxes were heavier than under the Turkish régime.

A railroad from Doboj to Siminhan, 67 kilometres, was opened on April 28. It is a prolongation of the line starting at Brod, on the Hungarian frontier, and will be continued to Serajevo, meeting the line which will go to the sea, the Mostar-Metkovic section of which was completed in 1885.

The Eastern Question.—The revolution in Bulgaria and the enforced abdication of Prince Alexander Battenberg provoked in Austria-Hun-

gary a strong feeling of resentment against Prince Bismarck and of distrust of the value of the Austro-German alliance. The German Chancellor through his press organs acknowledged that his action was influenced by a fear of a Franco-Russian alliance, though the admission was construed by his political opponents as a *ruse* to secure the voting of a military budget for the next septennial period. The Austrian and German diplomacy acted in concert during the crisis, but even though they restrained Russia from intervening actively in Bulgaria, and extracted from her a promise to continue to respect the independence of that principality, the events there were regarded in Austria-Hungary as a decided Russian victory, and one that affected the vital interests and security of the dual monarchy. These feelings found expression in interpellations in the Hungarian Parliament in September. In Hungary the creation of independent states in the Balkan region that will serve as a bulwark against the expansion of Russia is considered a necessity for the continued existence of the Austro-Hungarian Empire. With the Muscovite seated in Constantinople it is feared that the Slav peoples will gravitate to Russia, that the Austro-Hungarian federation of states will dissolve, and that, while German Austria will be absorbed in the German Empire, Hungary, like Roumania, will be engulfed in the Slavic flood, and her national existence eventually obliterated. The occupation of Bosnia and Herzegovina was at first unpopular in Hungary, because the acquisition of those provinces would add to the strength of the Slav element within the empire, but it was afterward accepted as a benefit, inasmuch as it was a check to the Pan-Slavic movement. The scheme of a parallel march of Austria-Hungary to Salonica, and a delimitation of Russian and Austrian spheres of interests in the Balkans, would not, in the view of Hungarian statesmen, avert the dangers that would probably rise from the Russian advance to Stamboul.

The Customs Treaty.—The customs union between the two parts of the empire, established at the time of the division in 1867, is renewable every ten years. The year 1886 was taken up with negotiations for the arrangement of duties, subsidies, etc., for the new period beginning with 1887. The Austrian and Hungarian ministers began their conferences on Jan. 5. They decided to fix the duties on grain at the same figure as in Germany, and arrived at an agreement on all points except in regard to the duties on petroleum, molasses, and woolen yarns. Negotiations were interrupted on account of a disagreement on the petroleum and sugar duties, but finally the Cabinets came to an accord. The Hungarian oil-refineries, the largest of which are situated in Fiume, down to the middle of 1885 used crude American petroleum, which was taxed 2 florins under the general tariff of 1882. Since then, Russian refined oil with an admixture of

crude has been brought in as crude oil, and the duty reduced by the Hungarian premium on refining to only 1·10 florin per 100 kilos. The two Cabinets agreed to increase the duty on Russian raw petroleum about 30 per cent., and that on American half-refined petroleum 15 per cent. The proposed new petroleum duties caused a Cabinet crisis to suddenly arise in Austria. The Austrians desired to have the abuses in the petroleum industry corrected, not only in order to prevent frauds on the revenue and to cheapen an article of necessity, but to relieve the newly developed oil-wells of Galicia from unfair competition. The borings in Galicia are 900 feet in depth, while those in the Caucasus seldom exceed 60 feet. Moreover, the Russian oil yields 80 per cent. of kerosene, and the Galician but 50 or 60 per cent. With these differences in cost and quality, the Galicians have to pay 5 florins duty when it leaves their refineries, even if the full rates of 5 florins for semi-refined and 10 florins for refined petroleum were paid by the importers. The Poles, German Liberals, Left Center, and Clerical Conservatives united against the compromise, which left the way still open to adulteration and fraud. The Minister of Finance, Dunajevski, declared it to be impossible to distinguish adulterated petroleum by chemical tests. He and Count Taaffe threatened to resign if the Government were defeated. The Czech party also determined to abandon the ministry. The Hungarians took the ground that the petroleum duties were part of a treaty in which concessions were made on both sides. The animosity excited by this question between the two parts of the empire was aggravated by incidents that occurred in Pesth at this time, the latter part of May. Some German officers, among them Gen. Janski, the commandant at the Hungarian capital, placed wreaths on the monument of Gen. Hentzi, who fell in defending Buda against the Hungarian revolutionists in 1849. For this a Hungarian mob broke Gen. Janski's windows. The offending general was recalled after the Hungarian Cabinet had threatened to resign. Street demonstrations in Pesth were put down by the police, who killed one man. The disturbances were renewed on June 9, and the military were called upon to preserve order. When large crowds collected again on the 10th the troops surrounded them, arrested over 700, and imprisoned the leaders. The excitement was revived in July when the successor of Gen. Janski, Gen. von Edelsheim, who had made himself acceptable to the Magyars, was placed on the pension list, and Gen. Janski was at the same time promoted to the command of a division. The patriotic susceptibilities of the Magyars were appeased by a letter from the Emperor-King to Premier Tisza. The amendment of Dr. Suss, a German Liberal, who proposed that crude petroleum should be taxed nearly as high as refined, which the majority of the Chamber, following the Polish Club, had adopted in the several caucuses, was

abandoned at the last moment by the Poles, who by the fall of the ministry would lose their dominant position. An amendment, proceeding from the Poles, was voted instead, which necessitated the reopening of negotiations between the Austrian and Hungarian Cabinets. In Austria the mode of collecting the sugar duty gave the opportunity for analogous frauds. The tax was paid on the raw sugar as it entered the refinery. The manufacturers, by adulteration or other means, persuaded the excise officers that their raw sugar contained a smaller percentage of sugar than was the case, and managed to get the export bounty on as much as they paid the tax on, and to escape paying excise duty on all that they sold in the home market. This evil was corrected by imposing the duty on the manufactured product, at 10 florins per 100 kilos. A tax of 1 florin 50 kreuzers was placed on liquid sugar.

The customs tariffs agreed on are of a highly protective character. On fine cotton yarn and some other articles that are materials that can be greatly enhanced in value by further processes the duties are reduced or taken off; on ordinary woolen yarns they are doubled. On cotton prints they are raised from 60 and 70 to 100 and 120 florins per 100 kilos; on certain linen goods, from 40 to 80 florins; on fine iron-wares, from 15 to 25 and 50 florins; on optical instruments, from 125 to 200 florins; on pianos, from 10 to 40 florins; on silk or part silk clothing, from 200 to 500 florins; on the finest metal wares, from 30 to 50 florins. On linen yarns the increase is 50 per cent.; on coarse cotton goods, 10 per cent.; on fine cotton goods, 20 per cent.; on woolen goods, 25 per cent.; on silks and figured linen goods, over 10 per cent.; on iron, from 20 to 30 per cent.; and on iron manufactures and machinery, 80 and 100 per cent.

These high and in some cases prohibitive duties affect chiefly German trade, as the British, French, and Belgian imports of manufactures had already been greatly reduced since the tariff of 1882.

In return for the protection of Austrian manufactures, the Hungarians obtained high duties on agricultural products. The duty on Indian corn is raised from 25 to 50 kreuzers per 100 kilos; on barley and oats, from 25 to 75 kreuzers; on rye, from 25 kreuzers to 1 florin 50 kreuzers; on wheat, from 50 kreuzers to 1 florin 50 kreuzers; on flour and bread, from 1 florin 50 kreuzers to 3 florins 75 kreuzers per 100 kilos. The cattle duties are raised from 10 to 15 florins per head on oxen; from 2 to 3 florins on heifers; and from 1 florin to 1 florin 50 kreuzers on calves.

The ten years' treaty contains provisions for abolishing the free ports of Trieste and Fiume at the end of 1889. It also renews the charter of the Austro-Hungarian Bank on the condition that two fifths of its notes in circulation must be covered by a metallic reserve.

The rejection of the petroleum duties by the

Austrian Reichsrath necessitated the renewal of conferences between the two Cabinets. The Hungarian ministers proposed modifications in the customs tariffs, which the Austrian ministry would not accept. Experts were called in to decide whether admixtures in petroleum could be detected by chemical examination, and while those on the Austrian side testified in the affirmative, the Hungarian chemists denied that there existed any practicable means for detecting the artificial compounds. The conference in Vienna ended in the beginning of October, without result.

The Roumanian Treaty of Commerce.—The commercial treaty with Roumania expired on June 1, 1886. The treaty was of benefit to Austria only, and brought Roumanian grain and cattle into competition with similar Hungarian products. The Hungarian authorities had therefore sought to defeat its provisions by prohibiting the importation even of salted and preserved meats, ostensibly on the ground of cattle-disease. The Roumanian Government by way of retaliation ordered, from March 21, the chemical analysis of articles of consumption at the frontier, especially of flour and spirits. The Hungarians objected to the renewal of the treaty unless this vexatious order were revoked. The negotiations failed because the Hungarian land-owners were unwilling to again encounter Roumanian competition. Under the old treaty there was a brisk exchange of Austrian manufactures for Roumanian cattle and grain, until the Hungarians, in 1882, under pretense of typhus, shut out Roumanian cattle. The result was, that in Roumania thousands of oxen died for lack of fodder, and the impoverished owners bought no more Austrian goods, while in Austrian cities during the severe winter of 1885-'86 the cost of meat rose to an unprecedented price. The lapse of the Roumanian treaty disappointed the people of Austria in a scarcely less degree than the Roumanians, and was the beginning of the state of exasperation at Hungarian arrogance that rose to a greater height on the failure of negotiations for a new ten years' treaty between the two monarchies, and found vent in national recriminations over the Janski affair. The Austrians of all nationalities resent the dominant position that Hungary often assumes in imperial affairs, though she contributes but 30 per cent. toward the common expenses of the dual monarchy. The Hungarians on their part consider dualism a failure, since the subordination of the German to the Slav element under the Taaffe régime, and after the Janski incident, which they interpreted as an insult and a menace to their constitution the opposition in the Hungarian Parliament made a vigorous appeal for a separation of the military forces of the two monarchies and the creation of a national army, sworn to support the Constitution.

Austria.—The Cisleithan monarchy has a central legislature, called the Reichsrath, and

seventeen Provincial Diets. The Reichsrath consists of an upper house, formed of 18 princes of the blood, 64 nobles, 17 archbishops and prince-bishops, and 104 life-members, and of a house of deputies, composed of 353 members, of whom 85 represent the landed proprietors, 116 the towns, 21 the chambers of trade and commerce, and 131 the rural districts.

The ministry is composed of the following members: Premier and Minister of the Interior, Count Eduard Taaffe; Minister of Public Instruction and Ecclesiastical Affairs, Dr. Paul Gautsch; Minister of Finance, Dr. J. Dunajewski; Minister of Agriculture, Count Julius Falkenhahn; Minister of Commerce and National Economy, Marquis de Becquehem; Minister of National Defense, Major-General Count S. von Welsersheim; Minister of Justice, A. Prazak; without a portfolio, F. Ziemiałkowski.

Finances.—The revenue of Austria for 1885-'86 is estimated in the budget at 504,961,495 florins; the expenditure at 520,198,772 florins. In 1876-'77 the revenue was 436,724,000, and the expenditure 432,910,000 florins. According to the financial estimates for 1885-'86, direct taxes yield 96,945,000 florins, of which 33,650,000 florins come from the land-tax, 27,804,000 from the house-tax, 24,530,000 from the income-tax, and 10,100,000 from the industrial tax. The yield of indirect taxes is estimated at 306,071,952 florins, excise duties producing 90,494,000 florins; customs, 46,815,452; the tobacco duties, 72,742,000; judicial fees, 34,000,000, the salt-tax, 20,274,500; the state lottery, 20,224,000; stamps, 17,600,000; and other taxes, 3,922,000. The receipts from the postal and telegraph service are estimated at 26,577,160 florins; those from the railways at 38,343,510 florins; the receipts from mines at 6,311,735 florins; from forests and domains, 3,947,350 florins; from the ministry of Worship and Education, 5,167,062; and smaller sums from other sources, besides 10,961,797 florins of extraordinary revenue. The expenditures under the principal heads are shown in the following table:

BRANCHES OF EXPENDITURE.	Florins.
Public debt.....	117,959,057
Ministry of Finance.....	102,229,476
Contribution.....	85,048,489
Ministry of Commerce.....	67,887,279
Ministry of Justice.....	19,820,600
Pensions and grants.....	17,208,240
Ministry of the Interior.....	16,208,218
Ministry of Agriculture.....	11,406,386
Ministry of Education.....	11,197,107
Ministry of Defense.....	9,479,612
Imperial Household.....	4,650,000
Ministry of Worship.....	4,315,340
Other ordinary expenditures.....	8,368,638
 Total ordinary expenditures.....	 470,768,417
Extraordinary expenditures.....	49,430,555
 Total expenditures.....	 520,198,772

At the beginning of the session of the Reichsrath, which met on Sept. 29, the Marquis de Becquehem announced a deficit during the last few years of 5,368,000 florins in the budget of the state railroads, and asked for a credit to

that amount. The budget estimates for 1887 calculate on a total revenue of 505,676,119 florins, with expenditures amounting to 521,975,654 florins, leaving a deficit of 16,299,535 florins, as compared with 8,791,930 florins in 1866. Part of the deficit is accounted for by the anticipated expense of 7,900,000 florins for railroads, while the repeating-rifles for the infantry account for 2,401,000 florins more.

Change in the Cabinet.—Baron Pino, the Minister of Commerce, was accused of jobbery in connection with the purchase of the Prague-Dux Railroad when the bill for the purchase was brought before the Reichsrath in February. The accused minister challenged his assailants to bring charges in a court of justice; but, finding his place in the ministry untenable, sought a way to vacate it on other grounds. Without consulting his colleagues he issued an extraordinary order curtailing the Emperor's prerogative in the appointment of savings-banks directors by limiting the selection to post-office employés. The ministers decided in a Cabinet council, on March 14, that he must recall the decree, and he thereupon offered his resignation on March 14, 1886, which was promptly accepted. Baron Pusswald was appointed Minister of Commerce *ad interim*. On June 27 the appointment of the Marquis de Becquehem to the post was gazetted. Like Dr. Gautsch, who was appointed Minister of Education on Nov. 6, 1885, the new Minister of Commerce is not a party man, and not dependent on the support of any constituency, while both are supposed to sympathize rather with the policy of the Liberals than with that of the reactionary Clerical Conservatives and Czech Radicals and Poles, who by joining issues have hitherto controlled the political situation.

The Austrian Landsturm.—A bill for creating a Landsturm in Austria was introduced in the Reichsrath on Feb. 17, and passed on April 16. It provides for the enrollment of all men, not in the regular army, between the ages of nineteen and forty-two. Two classes will be formed. The first includes men between the ages of nineteen and thirty-two; the second from thirty-two to forty-two. The Landsturm will only be employed for the defense of the country. The bill does not apply to the Tyrol or the Vorarlberg. This new reserve army will render the Landwehr available for active service in war-time, thus adding 270,000 men to the fighting strength of the regular army. The Landsturm will give the empire about 330,000 men for garrison duty and national defense, bringing up the total effective strength of the army on a war footing to nearly 1,500,000. All time-expired soldiers within the limit of age, and all persons who have obtained exemption from service in the regular army, will be enrolled in the Landsturm. Even such as are incapacitated for bearing arms by infirmities must serve, if capable of doing work, in the administrative branches of the service. The bill was strongly opposed by the Liberals.

It adds greatly to the financial burdens of the country; and the Germans fear that it will feed the national aspirations of the Czechs, giving them a localized army, which they will endeavor to make national, like the Hungarian Honved, in which the words of command will be given in their own language. The only amendment that was carried provides that, immediately upon the conclusion of a peace, the Landsturm shall be demobilized.

The War of Races.—In Bohemia the Germans strive for a division of the province into two administrative districts. A Central Union of German Agriculturists was formed for this object at Prague, on July 15. An industrial exhibition was also organized in Prague to show the importance of German handicraft in the Czech capital. The transmutation of parties has led Count Taafe lately to draw nearer to the Liberals and conciliate the German nationality. The calling of Dr. von Gautsch and Marquis Beequehem into the Cabinet indicated a new combination less favorable to the Czechs. The refusal to establish a theological faculty in the new University of Prague, the suppression of some schools in mixed districts, the order that officers on admission to the army must pass a strict examination in the German language, and similar measures, showed that the concessions to the Czechs were no longer the order of the day, yet to appease them the Minister of Justice issued on Sept. 23 a decree that gave great offense to the Germans. He ordered that after Jan. 1, 1887, in the superior courts of Bohemia the language in which by a former regulation the final decree is to be rendered must be used by the judges on the bench in their motions and opinions.

Early in March the Austrian Government interdicted the union of Old Catholics in Bohemia, as being a political association. This was the first result of the plan of action adopted by the conference of bishops held in Vienna to deliberate as to how the Old Catholic movement in Bohemia should be coped with. The spread of the Old Catholic doctrines, though springing partly from a spiritual and intellectual impulse, have, however, a strong political motive among the German Catholics that gives the Government a ground for interference.

The Diet of Prague, on a motion of the archbishop of that city, passed a resolution in favor of making religious instruction compulsory in the higher as well as in the lower classes of all state-supported schools.

The Labor Question.—The Austrian Government, in its efforts to combat socialistic ideas by police measures and criminal prosecutions, has achieved as little success as the German authorities with their anti-socialist laws. The clericals in Austria took the first step in legislation for the satisfaction and benefit of the laboring class by introducing and carrying through a law establishing a normal work-day. The Government has procured the enactment of laws establishing accident and invalid insur-

ance, which are a reproduction of the German measures on the subject. On Oct. 5 a bill was introduced in the House of Deputies that emanated from the German fraction, proposing to give the working class a share in the national representation; and an organization through which their separate interests will find expression and self-government in their proper affairs will be introduced. Class representation exists for the mercantile and manufacturing classes through the boards of trade. The land-owners are also represented as a class. The German Liberals propose to establish chamber of labor in each district where a chamber of commerce exists, twenty-six in all, and to allow these chambers, whose members are chosen by all who belong to the sick-fund associations, to send nine deputies to the lower house of Parliament. The Reichsrath enacted a socialist bill, arming the Government with enormous repressive power over suspected revolutionists. Such persons may be placed under police surveillance without judicial sentence, and may be ordered from one town to another, and compelled to report themselves periodically to the police in the places where they are ordered to reside. The new socialist laws passed in 1886 draw a distinction between socialists and anarchists. The latter are subjected to the severest penalties for revolutionary acts, and may be tried without a jury.

In October the Vienna police discovered an anarchist plot to set fire to the lumber-yards by the river and various parts of the city. Seventeen suspected conspirators were arrested in Vienna. A dynamite cartridge was found placed in a position to destroy one of the bridges across the Danube. Stores of explosives and weapons were discovered secreted in houses. There were others arrested as confederates in other towns. The plot was traced to anarchists in London and the United States, and was to have been carried out by persons recently returned from America.

The Burning of Stry.—The town of Stry, in Galicia, forty miles from Lemberg, was entirely destroyed by fire during a gale on April 17. The loss exceeded \$3,000,000. The number of persons left homeless was 15,000. All the public archives and registers and the private deeds were lost. Over 100 persons were burned to death; others lost their lives in sanguinary fights with robbers. The people camped out on the neighboring plain, where many old persons died from exposure, and were soon reduced to a famishing condition. Car-loads of provisions sent from Lemberg were plundered by the disorderly. This class was augmented by some of the neighboring peasantry, who had also taken part in the plundering of houses during the conflagration. The starving citizens invaded farm-houses in search of food, and many acts of brigandage and bloodshed took place. There were other destructive fires in Galicia, due to the imprudent use of petroleum. Besides several small-

er places, the town of Kalusz was destroyed in September, with a loss of nearly \$1,000,000 in buildings, leaving 3,000 persons shelterless and without the means of subsistence.

Hungary.—The Parliament is composed of a House of Magnates and a House of Representatives. The House of Magnates, under the reform act of 1885, includes all hereditary peers who pay over 3,000 florins per annum in land-taxes; 50 archbishops, bishops, and other dignitaries of the Roman Catholic Church and Greek Orthodox Church, with lay delegates from the Protestant and Jewish bodies; 100 life-peers appointed by the King, a category which was represented in the first Parliament under the reform act by 50 members that were selected by the house itself; ten official members, being state dignitaries and judges of the highest courts, and the archdukes who have reached their majority. In the first session of the reformed Chamber of Peers there were 22 archdukes and 233 resident Hungarian peers who held seats under the tax limitation. The lower house is composed of delegates elected by the direct suffrage under a low property or educational qualification. The house in 1885-'86 consisted of 453 members, of whom 337 represented Hungarian towns and districts, 76 were elected from Transylvania, and 40 were delegates from Croatia and Slavonia.

A bill prolonging the duration of Parliaments from three to five years was finally enacted in January, 1886, by a large majority.

The ministry is composed of the following members: President of the Council, Koloman Tisza; Minister of Finance, Count Gyula Szapary; Minister of the Honved, Baron Geza Fejervary; Minister near the King's person,

Baron Orczy; Minister of the Interior, Koloman Tisza; Minister of Education and Public Worship, Dr. August Trefort; Minister of Justice, Theophile Fabinyi, previously President of the Court of Cassation, appointed May 15, 1886, in the place of Dr. Theodor Paurer, deceased; Minister of Communications and Public Works, Baron Orczy, appointed *ad interim* in the place of Baron Kemeny, who resigned on Sept. 25, 1886; Minister of Agriculture, Industry and Commerce, Count Paul Szechenyi; Minister for Croatia and Slavonia, Koloman de Bedekovich.

Hungary has developed the parliamentary system of government to a high degree, and views with anxiety the deviation of Austria under the present ministry from the principles of parliamentary government that were cultivated during the ascendancy of the German Liberal party.

Finances.—The revenue for 1884 was 310,858,230 florins, including 6,800,000 florins obtained as part of a loan; the expenditure, 318,605,680 florins. The estimated revenue for 1885 was 326,317,695 florins; estimated expenditure, 337,998,528 florins. The total revenue for 1886 is estimated at 329,790,397 florins. The estimated expenditure amounts to 344,651,674 florins, of which 316,502,871 florins are ordinary expenditure. The special debt of Hungary, which is still increasing, owing to the constantly recurring deficits, amounted in 1885 to 127,158,000 florins. The annual charge of the special and common debts amounts to 37 per cent. of the revenue.

In the budget for 1887 the total expenditures are estimated at 350,400,000 florins, and the receipts at 328,300,000 florins.

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BAMBOO. It has long been known to botanists that a species of bamboo with a square stem grows in Japan, and more recently it has been learned that a similar species exists in China. Until within a few years it was supposed that this peculiar shape resulted from some of the ingenious artificial appliances that the Mongolian races so successfully employ in producing curious horticultural freaks; but it is now known, on the authority of botanists resident in China and Japan, that the quadrangular form is a natural growth. In China, whence it was probably transplanted to Japan ages ago, its geographical range is from 25° to 30° north latitude, along the coast, and as far into the interior as investigations have been made. It sprouts late in the season, and the stems are usually from two to five feet long, when the growth is checked by the cold of mid-winter. In the spring, the growth begins again, and in the course of the season the plant attains its full height of ten to fourteen feet, with a maximum diameter of one inch

and a half. The peculiar shape is not fully developed until after the second or third year. Like many other species, its lower joints are thickly set with thorns. Chinese tradition ascribes to it a miraculous origin. The famous alchemist, Ko-Hung, had a pair of artificially squared bamboo chopsticks, which he thrust into the soil of the temple-garden at Ningpo, where they took root, and a new species of bamboo was created. It is recorded that in 650 A. D. the reigning Emperor sent to Chekiang, where the square bamboo was specially cultivated, for specimens to plant in the imperial park. The Chinese regard it with superstition, ascribing to it miraculous powers. It is cultivated mainly for ornament, in gardens and temple courts. The larger stems are used for staves, and the smaller for pipe-stems. No flowering specimens of this bamboo have been received by competent botanists, and its final classification is not positively settled. It has been named by Fensi *Bambusa quadrangularis*, and specimens are now growing in the

botanical gardens at Kew, England, and in other European conservatories. The Japanese



SQUARE BAMBOO.

varieties are described in at least two Japanese books, written early in the present century.

BAPTISTS. General Statistics of the Regular Baptists.

The "American Baptist Year-Book" for 1886 gives in its summaries of the statistics of the regular Baptists in the United States the following numbers: of associations, 1,305; of ordained ministers, 16,191; of churches, 28,953; of additions by baptism, 135,840; of members, 2,572,238; of Sunday-schools, 12,550, with 93,426 officers and teachers, and 858,969 pupils. Value of church property, \$33,813,454. Amount of the year's contributions: for salaries and expenses, \$4,924,553; for missions, \$709,163; for education, \$112,259; for miscellaneous purposes, \$1,367,831; aggregate, \$7,113,808. In all of North America, including the United States, there were 1,329 associations, 29,886 churches, 16,780 ministers, and 2,675,594 members. The membership in the other countries than the United States is distributed as follows: in Canada, 28,345; in Mexico, 487; in New Brunswick, 12,172; in Nova Scotia, 24,160; in Prince Edward Island, 1,672; in the West Indies, 36,520. In South America, the Baptists have in Brazil, in the missions of the Southern Baptist Convention, 5 churches, 3 ministers, and 113 members. In Europe, 67 associations, 3,322 churches, 6,169 ministers, 6,911 baptisms, and 372,112 members were returned. Outside of Great Britain, the denomination is most numerously represented, of the several European countries, in Germany, where there are 33,483 members, and Sweden, where 27,135 members are returned. The Australian colonies returned 5 associations, 138 churches, 91 ministers, and 11,589 members, who were distributed as follows:

in New South Wales, 934 members; in New Zealand, 2,244; in Queensland, 1,093; in South Australia, 3,218; in Tasmania, 150; in Victoria, 3,950. The Asiatic missions return, altogether, 5 associations, 764 churches, 500 ministers, 3,745 baptisms, and 66,422 members. In Africa there were reported 2 associations, 94 churches, 61 ministers, and 7,297 members. The total of the Baptist churches in the world is 1,408 associations, 84,209 churches, 23,604 ministers, and 3,135,127 members, with, so far as was reported, 148,641 baptisms during the year. One hundred and twenty-five institutions of learning in the United States—of which 6 were theological institutions, 29 universities and colleges, 27 schools for the education of young women exclusively, 44 seminaries and academies for young men or for persons of both sexes, and 19 institutions for the colored race and Indians—returned aggregates of 696 instructors, 16,426 pupils, 1,503 of whom were preparing for the ministry, and real estate valued at \$7,718,716. The returns of endowment funds and income are still incomplete.

Publication Society.—The sixty-second annual meeting of the American Baptist Publication Society was held at Asbury Park, N. J., May 29. Mr. Samuel A. Crozer presided. The receipts of the society had been \$494,352 in the business department, \$134,255 in the missionary department, and \$27,492 in the Bible department, making a total of \$596,099, and showing an increase of \$69,223 over the receipts of the preceding year. Forty-six new publications had been issued, of which 228,500 copies had been printed; while 533,300 copies of new editions of former publications had also been printed. Thirteen periodicals for children, or for use in Sunday-schools and helps in the study of the Sunday-school lessons, were published by the society. Seventy-nine agents had been employed as missionaries and in the distribution of publications, under whose instrumentality 1,293 persons had been baptized, 37 churches constituted, 450 Sunday-schools organized, and 510 institutes held and addressed. Grants of libraries, books, tracts, etc., had been made in 2,500 cases, to the money value of \$12,133. It was reported of the Bible work of the society, that of the 38,595 copies of the Scriptures which had been given away or sold, only 580 copies of the Bible Union version and "Canterbury Revision" had been circulated, although all of these that were desired had been granted; and of \$28,000 received for Bible work, only \$50 were specially designated for any English version of the Scriptures other than the "Authorized Version."

Home Mission Society.—The fifty-fourth annual meeting of the American Baptist Home Mission Society was held in Asbury Park, N. J., May 27. Mr. Samuel Colgate, of Orange, N. J., presided. The total receipts of the society for the year had been \$382,314, of which \$259,721

BAPTISTS.

had been contributed by churches, Sunday-schools, and individuals; \$27,383 were in the shape of individual contributions to conditional and permanent trust funds; \$46,296 were derived from legacies; \$19,002 from investments and interest on church-edifice loans; \$19,086 from students' fees; and \$13,688 from women's home mission societies. The expenditures had been \$280,523; the debt had increased from \$117,988 to \$123,428; missionary operations had been conducted in 45 States and Territories, and in Ontario, Manitoba, British Columbia, and two States of the Mexican Republic. The whole number of laborers supported, in whole or in part, was 676, of whom 153 had labored among the foreign population, 193 (including teachers) among the colored people, Indians, and Mexicans, and 326 among Americans. These missionaries had supplied 1,512 churches and out-stations, received 3,296 members by baptism, and organized 140 churches; and they reported 28,181 church-members, 699 Sunday-schools, with 45,432 attendants, and benevolent contributions of \$27,092. The society had aided in the maintenance of 17 established schools for the colored people, Indians, and Mexicans, in addition to a day-school for the Chinese and two schools in Utah, the means for the support of which came from the New England Woman's Home Mission Society. Of the schools for colored people, Mexicans, and Indians, 11 were incorporated institutions and 6 unincorporated. In them 108 teachers had instructed 3,326 pupils, of whom 376 had been in the ministry or were preparing to preach, and 1,102 were studying with a view to teaching. Fifteen schools for the colored people returned 1,479 young men and 1,651 young women as pupils. The Indian University, near Muskogee, returned four teachers and seventy pupils, representing six nations or tribes in the Indian Territory. An elementary school was also taught among the Cherokees at Tahlequah. A medical school was conducted in connection with Shaw University, at Raleigh, N. C. Industrial education was given in many of the institutions, six of which had been aided from the John F. Slater fund. Monthly papers were published at eight of the institutions, and two papers were published in connection with the mission in Mexico. In the church-edifice department the society had aided 23 churches by gifts, 36 by loans, and 3 by gifts and loans. These churches provided sittings for 18,415 persons. The whole amount of money thus disposed of was \$26,172, and the property secured by its aid was valued at \$180,690. A special report was made by a committee which had been appointed to examine into the subject concerning the loss which the society had suffered through the financial failure of the agent to whom the investment of its funds had been intrusted, the whole amount of which, classified under eight headings, was given at \$131,521. The committee advised that the amount of those losses be made good by the

society to the funds upon which they fell as soon as possible. The whole matter of the adjustment of the settlement of the losses was referred to the Executive Board. A resolution was adopted asking the enactment by Congress of provisions "for opening at once the pathway into citizenship, self-supporting industry, and civilization before every Indian in the land, so that all may be permitted to accept the duties and receive the protection of United States citizenship at the earliest practicable date."

Missionary Union.—The seventy-second annual meeting of the American Baptist Missionary Union was held in Asbury Park, N. J., May 25th. The Rev. Edward Judson, D. D., presided. The receipts of the society for the year had been \$384,996, of which \$81,679 had been contributed through the women's societies. The year had been closed free of debt. The missions of the Union are in Asia (including Burmah, India, China, and Japan), Africa, and Europe. The Asiatic missions, which are classified as the Burman, Karen, Shan, Kachin, Assamese, Garo, Naga, Telugu, Chinese, and Japan missions, with the African missions, returned 785 preachers, of whom 193 were ordained and 592 unordained, 611 churches, and 56,440 members, with 3,450 persons baptized during the year. The European missions, in Sweden, Germany, France, Spain, and Greece, returned 946 preachers, 609 churches, and 61,892 members, with 5,544 baptized during the year. In all there were 1,731 preachers, 1,220 churches, and 118,332 members, with 8,994 persons baptized. Owing to the recent disturbances in Burmah, the statistics from the missions in that country were very imperfect. The Asiatic and African missions further returned 143 Sunday-schools, with 5,513 pupils, and 802 literary schools, of which 278 were self-supporting, with 16,648 pupils.

Southern Baptist Convention.—The Southern Baptist Convention met in Montgomery, Ala., May 7. The Rev. P. H. Mell, D. D., of Georgia, was chosen president. The Home Mission Board reported that its receipts for the year had been \$94,824. It had employed 255 missionaries and supplied 649 churches and stations, with 326 Sunday-schools attended by 12,531 teachers and pupils. Seventy churches had been constituted, 49 meeting-houses built, and 3,812 persons baptized. The board recommended earnest and vigorous missionary work among the colored people, and desired \$10,000 for the continuance of it and for aiding young colored ministers in securing education. For the first time in the history of the convention more than twenty colored preachers were enrolled among its missionaries. A number of Cubans, converts of the board's mission at Key West, Fla., had gone back to Havana and established there a church and Sunday-school. This enterprise was put under the care of the Home Mission Board as the Cuban mission. The Levering Manual Labor School, in the Indian Territory, was in a flourishing condition.

The receipts of the Foreign Mission Board had been \$83,404. The missions are in China (northern, central, and southern), 547 members; Africa (Lagos), 125 members and 220 pupils; Italy, 11 stations, 288 members; Brazil, 81 members; Mexico, 270 members, 216 pupils.

Gifts were acknowledged of \$60,000 by Baptists in New York and \$25,000 by Baptists of Louisville, Ky., for the Southern Baptist Theological Seminary and the cost of its buildings and grounds. Reports were adopted on systematic benevolence, woman's work in the convention, and temperance. The report on woman's work recognized its value, but did not make any provision for the admission of women into the convention as delegates. The report on temperance pledged the influence of members of the convention in all proper ways for the suppression of the manufacture and sale of intoxicating beverages.

The Baptist Congress.—The fifth annual meeting of the Baptist Congress was held in Baltimore, Md., Nov. 16, 17, and 18. The Rev. W. E. Hatchee, of Richmond, Va., was the president for the year. The following topics, brought up according to a previously arranged programme, were discussed in written papers and appointed and voluntary addresses: "Inspiration of the Scriptures," by the Rev. G. D. B. Pepper, D. D., and the Rev. O. P. Eaches, D. D.; "Faith-Cures," by the Rev. W. H. Whitsitt, D. D., and the Rev. F. H. Kerfoot, D. D.; "The Labor Question," by the Rev. Philip H. Moxom, Hon. James Buchanan, and the Rev. G. T. Dowling; "Religious Instruction in State Education," by Prof. N. K. Davis, the Rev. Galusha Anderson, D. D., LL. D., and the Rev. Walter Scott; "Sabbath Observance (a) Scriptural Grounds," by the Rev. J. F. Elder, D. D.; "(b) Utilitarian Grounds," Rev. Reuben Jeffrey, D. D.; "(c) How best secured," by the Rev. Lansing Burroughs, D. D.; "The Future Life (a) Endless Punishment," by the Rev. E. B. Hulbert, D. D.; "(b) Conditional Immortality," by the Rev. W. H. Robinson; "(c) Future Probation," by the Rev. E. H. Johnson, D. D.; "Popular Indifference to Religion," by the Rev. Malcom McVicar, LL. D., and Rev. John Peddie, D. D.

Free-Will Baptist Church.—The twenty-sixth triennial Free-Will Baptist General Conference met in Marion, Ohio, Oct. 4. The Rev. J. L. Phillips, D. D., returned missionary from Midnapore, India, was chosen moderator. The question which engaged most of the attention of the Conference was that of the union of the Free Baptist and other denominations holding like views with it on questions of doctrine and church polity. Corresponding delegates from the bodies in question were present to express the sympathy of the bodies they represented in the subject of the discussion, as follows: the Rev. J. R. H. Laidlaw, the Rev. R. H. Bolton, from the Church of God; the Rev. D. A. Long, D. D., the Rev. N. Summerbell, D. D., and the Rev. C. A. Tillinghast, from the Amer-

ican Christian Convention; the Rev. William Hayden, D. D., and the Rev. J. M. Atwater, D. D., from the Disciples of Christ; the Rev. T. H. Siddell, from the Free Baptists of Nova Scotia; and the Rev. Smith Baker, from the National Congregational Council. The following is the minute of the action which was taken on the subject:

We, the delegates of the Free Baptist General Conference, acknowledging the manifold blessings with which God has favored the people we represent; recognizing the importance of the work still before our people; taking into consideration the fact that God is moving his children of every name to closer relationships with each other as well as with himself; and, in order that our position may not be misunderstood, hereby set forth the following declarations:

1. We believe in the spiritual unity of all the followers of our divine Lord, and desire so to manifest his spirit as to evince our unity with him and with all who love him.

2. We are ready to form such alliances with other Christian bodies as may promise larger results in advancing our Lord's kingdom.

3. We are ready to join in organic union with such Christian bodies as may so far agree with us in doctrine and usages as to give assurance of continued harmony and peaceful relations in Christian work.

4. We regard loyalty to Christ and the Bible, and the independence of the local church as suggesting a basis on which closer relationship with other Christian bodies may be attained.

5. We direct the Conference Board to take into consideration and report upon at the next General Conference such opportunities for closer relationships with other Christian bodies as may in their judgment give promise of increasing our own work in helping bring the world to acknowledge Christ as King of kings and Lord of lords.

A committee of five persons was appointed to confer with committees from the Christian Connection, the disciples of Christ, and the Congregationalists, and another committee to confer with a committee from the Church of God on the subject of Christian union; and both committees were given power to act for the conference as their wisdom and best judgment might direct. The conference directed a Christian Convention of Liberal Baptists to be called to meet at Ocean Park, Old Orchard Beach, Maine, in August, 1887. An agreement for co-operation in foreign missionary work, particularly in lower Bengal, India, was made between the Foreign Mission Boards of the Free Baptists and of the Church of God. Acknowledgments were made to the Rev. S. P. Smith for a gift of \$10,000 to Hinsdale College; to Winnebago City, Minn., for an offer of \$12,000 and forty acres of a land for a Free Baptist institution of learning to be placed there; and to the Hon. J. L. H. Cobb for a gift of \$25,000 to Bates College, conditioned upon the denomination adding \$75,000 to it.

Union Convention.—An informal convention of delegates from four conferences and one quarterly meeting of the American Christian Convention and six associations and quarterly meetings of the Free-Will Baptist Church, all in New England, met in Boston, March 10, to consider upon promoting a union of the

two denominations. The Rev. I. D. Stewart, Free-Will Baptist, and the Rev. I. H. Coe, of the Christian Connection, were elected joint presidents of the convention. A paper was presented embodying "a statement of general sentiments held by the Christians," which received that—

The Churches of the Christian denomination in association with the American Christian Convention, while disowning all formal creeds, considering the Holy Bible to be a sufficient rule of faith and practice, and Christian character or vital piety the only test of Christian fellowship, have yet found, as a result of loyalty to Scripture teaching, that in practice they receive and maintain, with great unanimity, the following important principles of evangelical or gospel truth :

1. That the Holy Bible, or Scriptures of the Old and New Testaments, is given by inspiration of God, and is consequently to be accepted as the authoritative standard by which religious teaching and human conduct are to be regulated and judged.

2. That Holy Scripture reveals to us one God the Father Almighty, of whom are all things and we in him; and one Lord Jesus Christ, the only-begotten of the Father, the brightness of God's glory and the express image of his person, by whom are all things and we by him; and the Holy Ghost, the renewer, comforter, and sanctifier, who with the Father and the Son together is worshiped and glorified.

3. That the love of God to sinful men has its highest expression in the gift of his Son, who, laying aside the glory which he had with the Father before the world was, took upon him man's nature, and at last suffered upon the cross, that we through his death might have life.

4. That the grace of God in the gospel is freely offered to all men, and that all who believe in Christ and heartily accept him in this life as their Saviour, are regenerated through the power of the Holy Ghost, and become heirs of salvation.

5. That the Church of Christ, invisible and spiritual, comprises all true believers in Christ, whose duty it is to associate themselves in churches for the promotion of spiritual growth and Christian fellowship, for the observance of the ordinances, for the teaching of gospel truth, and for a zealous effort for the conversion of men; and that these churches, in fellowship with one another, may determine—each for itself—their organization, beliefs and forms of worship, and should co-operate together to manifest their unity in Christ in the face of all mankind.

6. That the Scriptures teach the ultimate prevalence of the kingdom of Christ over all the earth; the glorious appearing of the great God and our Saviour Jesus Christ, the resurrection of the dead, and a final judgment of the wicked to eternal punishment, and of the righteous to life everlasting.

NOTE.—The churches of the Christian denomination almost uniformly administer baptism by immersion, but regularly invite all Christians, without distinction of denomination or opinion, to the Lord's Table.

A resolution was passed expressing the sense of the meeting that a union of the two denominations was desirable, if it could be accomplished without detriment to the interests of the cause of either body.

A committee was appointed to draw up a basis of union, with authority to call a general convention of representatives of the two bodies when prepared to present its report.

This convention met in the city of New York, May 5. The Rev. J. D. Stewart, of New Hampshire, presided. A draft of a basis

of union was adopted, after several propositions had been received, as follows:

The Free Baptist and Christian Churches, perceiving their unity in the reception of the Holy Scriptures as given by inspiration of God, and as the only rule of faith and conduct; and that Christian character, attained in the exercise of saving faith in the Lord Jesus Christ, by the washing of regeneration and the renewing of the Holy Spirit, is the indispensable condition of admission to the ordinances of the gospel, and to the fellowship of the Church; and recognizing one Lord, one faith, one baptism, one God and Father of all, who is above all and through all and in all; deplored the evils of needless division, conceding the liberty of the several churches to retain or adopt such local name, covenants, forms, and usages as they may desire, in due subordination to the precepts of God's Word, do hereby propose to form a union as follows :

1. In efforts to carry out the command of our divine Lord, "Go ye into all the world and preach the gospel to every creature."

2. In efforts for the more effectual preaching of the gospel at home in order to the promotion of piety among Christians and the conversion of sinners, regarding the gospel to be the power of God unto salvation to every one that believeth.

3. In improving the condition of our Sunday-schools, in establishing new schools, and in taking measures to have the statistics of all these schools annually reported and published.

4. In endowing and supporting the institutions of learning already existing in either body represented in this committee, and in founding such new ones as may be deemed expedient.

5. In the sustaining of such periodicals as are now published by both bodies, and in publishing a year-book and a religious quarterly or magazine by some person or persons in good standing in either denomination.

6. We recommend that such churches, conferences, quarterly meetings, and other bodies, as occupy closely connected territories, unite. That ministers of each denomination form organizations for religious worship, biblical research, and mutual improvement, and that the weak churches and scattered families of the above-named bodies be brought together as rapidly as practicable.

7. That independent churches in sympathy with this movement be advised to unite with some association already existing in either body, or to form themselves into new associations to be connected with one body or the other.

8. In entering this union, neither the Free Baptists nor the Christians relinquish their name, doctrine, church polity, fellowship or principles of communion; but they rather emphasize whatever they have heretofore taught, and what they now consider, as biblical, evangelical, charitable, and true; each, however, observing that truth for itself, without attempting to force it upon another; yet hoping that, by fraternal association and mutual forbearance, variations may vanish away, and that both may be so assimilated in the spiritual church as to become one people in every particular; for which we will labor and pray.

A joint committee was chosen, by resolution of the convention, to arrange for carrying out the provisions of the basis of union, with power to present questions of policy that might arise to the general bodies of the two denominations, if it should be deemed advisable for the promotion of the objects of the movement.

Seventh-Day Baptists.—Statistical returns made to the Seventh-Day Baptist General Conference from 74 out of the 97 churches of the denomination, show an entire membership of

8,228. The net increase of members during the year had been 118. The amounts of funds raised were: For pastors' salaries, \$19,432; for Sabbath-schools, \$1,243; for the Tract Society, \$6,512; for the Missionary Society, \$4,690; for other work, \$10,382; total, \$42,260. The number of members of Sabbath-schools was returned at 4,753, with 321 teachers.

The accounts of the Seventh-Day Baptist Education Society, including invested funds, were balanced at \$46,441. Alfred University returned an average attendance during the collegiate year of 286 students, with a total of 412 individual registries; Milton College had 259 students, and Albion Academy an average attendance of 73 students.

The receipts of the year of the American Sabbath Tract Society were \$15,350. The printing-house had done a business of \$16,406 in the publication of the periodicals of the denomination, the book entitled "Sabbath and Sunday," and tracts. Of the six periodicals, one was in the Swedish language and one in the Dutch. Besides the main depository at Alfred Centre, N. Y., sub-depositories have been established at Texarkana, Ark., and Minneapolis, Minn. The society at its annual meeting, September 26, recommended the publication of a Seventh-Day Baptist Hand-book, to contain an outline of the denominational history, statements of the views of Christian doctrine, practices, and church polity recognized by the denomination, and an account of the present condition and work of the General Conference and the societies.

The receipts of the Seventh-Day Baptist Missionary Society for the year had been \$13,572, or \$3,685 more than the receipts of the previous year, and the expenditures had been \$10,447. In the Home Missions 82 members had been added by baptism. From the mission in China (at Shanghai) were returned 3 American missionaries, 3 native preachers, 4 teachers, and 4 regular and 2 occasional helpers in the medical mission. The mission-schools had been attended by 26 boys and 9 girls. The mission in Holland returned 2 stations (Haarlem and Frieschlo), with 1 minister at each, and an increase of 13 in the number of Sabbath-keepers.

The Seventh-Day Baptist General Conference met in its seventy-second session at Milton, Wis., September 12. Mr. George H. Babcock presided. The amount of the memorial fund was reported by its treasurer to be \$80,212. Its income for the year had been \$3,640. The Woman's Executive Board reported that it had received \$3,062, that it had endeavored unsuccessfully to pay the salary of one missionary and an equal amount to the Tract Society, and that it had kept up a regular correspondence with the missionaries in the foreign field. The Committee on Denominational History presented a report urging the pastors of churches to gather such materials as could be used in preparing histories of those churches, which should describe not only the leading events in

their careers, but also the effect of salient principles or doctrines as felt in their growth. Upon the advice of the Executive Committee, the Conference decided to appoint a committee to open correspondence with persons of whom they might learn, who are interested in the Sabbath cause, with power to recommend the organization of groups of Sabbath-keepers, where such exist, if they see fit, into churches. The three topics, "Is Denominational Growth desirable, and, if so, why?" "What are the Elements of Denominational Growth?" and "By what Methods can Denominational Growth be promoted?" were discussed by the Conference. A declaration was adopted expressing it as the general belief of the denomination, with a few dissentients, that the Lord Jesus Christ, according to the Scriptures, will certainly and personally come again "without sin unto salvation"; that there will be a resurrection of the dead, both of the just and the unjust; and that while the day and the hour when either of these events will happen is not known, "God has appointed a time for each of them, and they will certainly occur in his own appointed time." A declaration was adopted approving the principle of the prohibition of the manufacture and sale of intoxicating liquors; declaring the license system, high or low, as applied to the liquor-traffic, wrong; and approving laws of States that require instruction in public schools regarding the effects of alcohol and narcotics on the human system.

Baptists in England and Ireland.—The spring meetings of the Baptist Union of England and Ireland, and of the societies affiliated with it, were held in London, beginning May 10. The Rev. Charles Williams presided and delivered the opening address. The report of the Council showed that the total sum raised by the members of the Baptist churches for all purposes had been £610,000, and that the ratio of their contributions was equivalent to 2½ per cent. of their income.

The report of the Council showed that at the end of 1885 accommodation was provided in 3,654 chapels in Great Britain and Ireland for 1,181,000 persons. The reported membership in 2,713 churches was 315,940, or 3,470 in excess of the registry of 1884. The number of Sunday-school teachers was 49,440, and of pupils in Sunday-schools, 472,000, showing an increase of 700 teachers and 4,000 pupils. The sum of £40,000 had been expended upon new chapels, securing a provision of 11,400 sittings; £56,000 had been spent in chapel improvements, new school-rooms, class-rooms, etc.; and £90,000 had been paid toward the removal or diminution of debts.

The Baptist Building Fund returned an income from subscriptions, gifts, and returns of loans, of £8,109, of which £7,675 had been disbursed in thirty fresh loans. The total amount granted from the fund to 750 churches exceeded £148,000, and the officers held in custody 141 trust and title deeds.

Baptist Missionary Society—The Baptist Missionary Society returned an income for the year of £61,417, being an increase, as compared with the previous year, of £2,273; but the expenditure had exceeded that sum.

The Baptist Zenana Mission reported that its force of laborers included 42 zenana visitors, 25 assistants, and 104 native Bible-women. These were laboring in 18 different districts, visiting regularly 986 zonanas, and teaching daily some 1,500 people. The society closed the year with a debt of £280 standing against it.

The autumnal session of the Baptist Union was held in Bristol, beginning October 4. The meetings were devoted chiefly to discussions, in formal addresses and written papers of subjects relating to the prosperity and growth of the denomination, and of the various enterprises in missions—domestic and foreign—education, and church building and extension, in which the Union is actively interested. The Baptist Zenana Mission (for India) reported that its expenditures for the year had been a little more than £6,000, and that some of the girls who had been in its schools were now teachers. The receipts of the Baptist Annuity Fund for the year had been £9,315, and its total investments to September 30 had been £109,738. The number of beneficiary members was 843, and of annuitants 121, while 142 fresh applicants to be beneficiary members had been accepted. The British and Irish Home Missions reported a deficit of between £600 and £700. A resolution was adopted pertinent to the approaching jubilee of the Queen's reign, directing the preparation of an address to her Majesty and the offer of other suitable testimonials of loyalty.

Baptists in Scotland.—The annual meeting of the Baptists of Scotland was held in Glasgow in October. The Rev. F. H. Roberts presided. An increase of 512 members was reported, and the whole number was now 9,930. A congratulatory address to the Queen on the occasion of her approaching jubilee, and resolutions in favor of disestablishment and of international arbitration, were adopted.

General Baptists.—The General Baptist Association met at Leicester in June. The statistical report showed that there were in England 192 General Baptist churches, with 25,826 members. The "Association Letter" dwelt upon the ministry of religious truth in the villages of England, and recommended the grouping of villages under the leadership and in the circuit of town churches.

BELGIUM, a constitutional, representative, and hereditary monarchy in Western Europe. The legislative authority is vested in a Parliament consisting of two chambers. The senators are elected for a term of eight years, one half retiring every four years. The members of the House of Representatives are elected for four years, one half being replaced every two years. The representatives are elected by vote of all citizens paying direct taxes annually to

the amount of 42 francs. The electoral lists in 1885 contained 126,419 names, being one out of every thirteen adult males.

Area and Population.—The area of the kingdom is 11,373 square miles. The estimated population at the beginning of 1885 was 5,784,958, of which number 2,890,812 were males and 2,894,146 females. The number of births in 1884 was 176,721; deaths, 121,070; marriages, 39,209; natural increase of population, 55,651. There was an increase by immigration of 2,565 persons in 1884. The population of Brussels, the capital, on Jan. 1, 1885, was 403,389, inclusive of the suburbs; Antwerp had 191,124 inhabitants; Ghent, 140,926; Liège, 133,044; Mechlin, 46,499; Bruges, 45,559; Verviers, 44,667; Louvain, 37,490; Tournai, 33,773; Seraing, 30,607.

Commerce.—The total volume of the general commerce in 1883 was 5,410,900,000 francs. The special imports amounted to 1,552,131,000 francs, and the special exports to 1,343,126,000 francs. Chief among the special imports were cereals and rice of the value of 296,966,000 francs; wool, woolen tissues, and yarn, 127,847,000 francs; metals and minerals, 114,929,000 francs; textile fabrics, excepting cottons, woolens, and silks, 89,782,000 francs; hides, 80,782,000 francs; live animals, 72,785,000 francs; oil-seeds, 57,750,000 francs; cotton, 56,416,000 francs; timber, 48,290,000 francs; coffee and sugar, 47,921,000 francs; chemical products, 34,473,000 francs; butter, 25,820,000 francs; flax and hemp, 13,034,000 francs; vegetables, 11,093,000 francs. All other classes of imports amounted to 474,514,000 francs. The exports of the different classes of domestic products were of the following amounts: cotton, woollen, and linen thread, 121,340,000 francs; cereals, 107,837,000 francs; machinery, 92,625,000 francs; coal, 85,329,000 francs; stones, 74,870,000 francs; vegetable fibers, 67,599,000 francs; cotton, woolen, and linen tissues, 66,782,000 francs; wrought-iron, 63,938,000 francs; glass, 56,602,000 francs; sugar and molasses, 56,435,000 francs; hides, 51,936,000 francs; raw zinc, 35,916,000 francs; oil-seeds, 25,525,000 francs; resins, 17,685,000 francs; candles, 14,432,000 francs; food preparations, 14,174,000 francs; vegetables and roots, 12,606,000 francs; all other articles, 349,831,000 francs.

The imports from France amounted to 307,146,000 francs; from Germany, to 233,100,000 francs; from the Netherlands, to 210,021,000 francs; from Great Britain, to 197,865,000 francs; from the United States, to 159,554,000 francs; from Russia, to 133,634,000 francs; from Asiatic countries to, 80,862,000 francs; from the Argentine Republic, to 48,436,000 francs; from Sweden and Norway, to 34,914,000 francs; from Italy, to 22,283,000 francs; from Brazil, to 22,265,000 francs. The exports to France were of the value of 415,465,000 francs; to Great Britain, 273,594,000 francs; to Germany, 229,390,000 francs; to the Neth-

erlands, 177,030,000 francs; to the United States, 43,342,000 francs; to Spain, 38,665,000 francs; to Italy, 30,844,000 francs; to Switzerland, 22,030,000 francs; to Asia, 12,843,000 francs; to the Argentine Republic, 10,203,000 francs; to Brazil, 10,059,000 francs.

Industry.—An official return relative to the collieries gives the output in 1885 as 17,000,000 tons, as compared with 18,000,000 in 1884; the number of pits worked as 285, as compared with 289; miners employed, 103,095, as compared with 105,182; average annual pay, 813 as compared with 914 francs; cost of extraction per ton, 8 francs 67 centimes, as compared with 9 francs 18 centimes; produce of sales per 1,000 kilos, 8 francs 87 centimes, as compared with 9 francs 53 centimes; aggregate profits, 6,929,055, as compared with 6,250,110 francs.

Navigation.—The maritime commerce is carried on chiefly by British vessels. The commercial marine in 1883 numbered 62 vessels, of 86,360 tons, of which 47, of 79,902 tons, were steamers. The total tonnage entered at Belgian ports in 1884 was 4,064,816; cleared, 4,032,317 tons.

Railroads.—The length of railroad lines in operation on Jan. 1, 1885, was 2,730 miles, or 4,366 kilometres, of which 3,110 kilometres were worked by the state and 1,256 kilometres by companies. The gross receipts in 1884 were 162,172,058 francs, the expenses 95,368,409 francs. The state had spent, up to the end of 1883, 888,404,000 francs in the construction of railroads, and had purchased lines by means of annuities of the capital value of 319,798,000 francs.

Posts and Telegraphs.—The post-office in 1884 forwarded 88,203,550 private and 13,793,075 official letters, 24,748,490 postal-cards, 54,959,000 circulars, and 94,522,000 journals.

The telegraphs transmitted, in 1884, 6,788,071 dispatches. There were, on Jan. 1, 1885, 3,749 miles of state lines, and 17,587 miles of wires. The receipts in 1884 were 2,637,074 francs; expenses, 3,435,327 francs.

The Army.—The standing army in 1886 numbered 47,237 men of all ranks. The war strength is 103,860 men, with 18,800 horses, and 240 guns. There is besides a civic guard, numbering in 1884 34,985 men, and a gendarmerie of 2,011 men.

Finances.—The budget for 1886 makes the total ordinary revenue 320,555,406 francs, of which 132,821,000 francs are derived from railroads, posts, and telegraphs; 37,367,200 francs from excise duties; 25,579,900 francs from land taxes; 25,531,600 francs from customs duties; 24,360,000 francs from registration and other fees; 19,320,000 francs from succession duties; and 19,066,000 francs from personal taxes. The total ordinary expenditure is estimated at 319,166,330 francs, of which 102,583,964 are required for the interest on the debt; 89,176,814 francs for railroads, posts, and telegraphs; 45,624,100 francs

for the army; and 22,155,898 francs for public instruction. The ordinary budget in 1885 showed a small surplus, but the extraordinary expenditures left a deficit of about 38,500,000 francs. The public debt in 1886 amounted to 1,780,727,000 francs, not including 16,446,000 francs of annuities. The 4 per cent. consols, amounting to 1,048,000,000 francs, are being converted into 3½ per cents. The other debts pay 3 and 2½ per cent.

The bill for the conversion of the 4 per cent. debt into 3½ per cent. bonds, which could be effected at par, and will save 5,300,000 francs a year in interest, was passed by the Chambers in November, 1886.

Legislation.—In 1870 the Liberal ministry of Frère-Orban proposed to create a reserve army of 30,000 men, but the measure was defeated by the clerical vote. The Clericals upon coming into power themselves concluded that the existing military establishment was insufficient for the security of the frontier, and a bill to increase the standing army was brought in by Minister Pontus, which was carried in the lower chamber on Feb. 12 by a vote of 70 to 52. The plan, which was denounced by Frère-Orban as a waste of money, is to promote 54 captains and to create their commands when necessary in the future by prolonging the term of liability to service in five classes of the militia from eight to thirteen years. The reserve men who are affected by the law are of the class not qualified to vote, while the property-owning class escapes.

In a bill dealing with authors' rights in literary property, a clause was inserted providing that newspaper intelligence or telegrams must not be reproduced without indicating the source if accompanied by a notice from the editor prohibiting republication.

The Belgian Senate in March voted against sending a minister to Rome, on the ground that the Kingdom of Italy had robbed the Pope of his rights.

In the beginning of June elections were held for the renewal of half the members of the Chamber. The result was favorable to the Clericals, who before the elections had 86 members to 52 Liberals, and after, 98 to 40.

Labor Riots.—The deplorable condition of the 100,000 miners in Belgium led to a series of strikes and riots, which at times assumed a most alarming character. The miners' wages, which in 1873 averaged \$264 per annum, were reduced from time to time, until in 1884 they were \$183. The average day's wages in the mines of Seraing was 52 cents, and at Liège the common rate was 48 or 50 cents, and the highest 79 cents. The only food of the miners is bread, sometimes flavored with oleomargarine, or a taste of sausage made of pork and horse-flesh. On Sundays they may have a little meat. The mine-owners asserted that, owing to the depth of the mines, they could pay no higher wages and compete with German and other foreign coal-mines. The capital in-

vested in Belgian coal and iron works has yielded, it is calculated, not over 2 per cent. per annum during the past ten years. In 1885 there was a great strike in the Borinage, and the miners brought their grievances forward pacifically, but nothing was done. The coal-trade was generally believed by the miners to be more prosperous than usual, but a steady reduction of wages had been enforced. The first alarm was created on March 18, at Liège, by an anarchist meeting, which was called to celebrate the anniversary of the Paris Commune. The meeting was orderly, but when the audience left the hall they were attacked by armed police, their flags destroyed, and the people roughly handled. The miners, incited by one Wagener, of Herstal, then began to destroy property and plunder shops and hotels. A number of the rioters were arrested, among them the leader. The disturbance took the form of a general strike among the miners in the Liège district, and soon extended to the surrounding districts. Strikes against reductions of wages were the ostensible cause of the riots, but the discontented workmen began to attack property and capital in every direction. All work was stopped throughout the districts of Liège, Charleroi, and Mons, and manufactories of all kinds, especially glass-works and iron-works, were attacked by the rioters, and in many cases destroyed; villages were plundered, and many country-houses were pillaged. The civic guard was called out, and stationed at points threatened by the strikers. Collisions between the rioters and troops were frequent, and many lives were sacrificed. The Sariemont colliery was attacked by 300 rioters, who were fired upon by the troops, with a loss to the former of fourteen killed and wounded. In attempting to stop the work of the mines at Carnières and Ressaix, the rioters were again fired upon, after having been ordered to disperse, and three men were killed and fourteen wounded. For several days the strike gained headway in Liège, Charleroi, Tournai, Mons, and the neighboring districts, and great damage was done to private property. Toward the end of March the former rates of wages were restored in the mines, and the striking miners returned to work. During the strikes over fifty men were killed or wounded, and property of the value of millions of francs destroyed. At Gosselies a large glass-factory was burned, and five mansions destroyed. The glass-works were a model establishment, employing 950 men. They were defended by 32 lancers, who were soon routed by the mob armed with stones.

By the 26th of March the general strike began in the industrial district of Charleroi, the seat of the Belgian glass industry. At Lodelinsart three glass-factories were destroyed. Coal-mines, glass-works, rolling-mills, and foundries in various localities were forcibly closed by rioters. At Acoz gendarmes charged into a crowd and wounded several persons. At Cha-

teaulineau there was a collision with troops, and many were hurt on both sides. The soldiers in some cases refused to use their weapons against the people, and there were several trials of privates and non-commissioned officers for insubordination. The glass-works at Jumet, and several country-houses in the neighborhood of Ligny, Fleurus, and Chassart, were burned on March 27. Other important glass-works and two convents were set on fire. At Roux seven men were killed and eight wounded. The army reserves were called out, and a large military force concentrated at Charleroi. A body of strikers who attempted to enter the town were fired upon, and some of them killed. Ball-cartridges only were served out to the troops. A state of siege in the districts affected by the strikes was proclaimed on March 28. The production of window-glass had outstripped the demand, and caused the Belgian manufacturers to reduce their output to one third less than in 1885. Many men were thus thrown out of employment, while the wages of the rest were reduced 10 per cent. or more. The overproduction in Belgium was traceable to improvements, notably the great tank-furnaces, invented by Siemens, adopted by a few of the large manufacturers. The Belgian glass-blowers, whose difficult and exhausting trade was handed down from father to son, considered that these large capitalists, who, besides displacing men by mechanical improvements, sought cheaper labor among the peasantry, had robbed them of their occupation, in which, owing to the superiority of Belgian glass, they would otherwise be able to compete with all the world. The smaller manufacturers, who were fast being driven out of business, held the same belief. This was the cause of the acts of incendiaryism committed by the infuriated workmen, who burned the great factories in the hope of bringing back the old conditions.

At Brussels there were meetings at which the police and the Government were denounced for the course they had taken, and when the police interfered the crowd attempted to make a demonstration before the Royal Palace, but were violently dispersed by the police. The radical press argued that such disturbances could not occur if the workingmen possessed the right of suffrage and representation of their interests in the legislature. Some newspapers proposed that the Government should purchase the coal-mines. The leading Clerical organ said that the social question must thenceforth take precedence of political questions. On the 1st of April there were 15,000 men on strike in the Charleroi district and many thousands elsewhere, but in the Liège district and other places where the troubles first broke out, comparative quiet prevailed when the disturbances began around Charleroi and Mons, and the men were now returning to work, having obtained concessions.

With 12,000 troops in the Charleroi district, disorders were easily checked, and on April

6 Gen. Vandersmissen, the commander, announced that order had been re-established. About 30 strikers altogether were killed by the soldiers in the various disturbed districts.

The Labor Question.—Before the March riots there was no Socialistic party in Belgium, such as exists in France and Germany. There were a few writers and speakers whose utterances awakened sympathy with the revolutionary strivings in the neighboring countries; but in Belgium trade-unionism and co-operation were the practical aims presented in their teachings. Universal suffrage has long been regarded by the industrial laborers as the means by which they will eventually gain their rights. Shut out from representation, they conceive that they are the victims of class legislation, in spite of the many liberal features in the laws of Belgium. Yet the school question has overshadowed all others in recent years. The industrial workmen are friends of secularism and state education, and the immediate effect of universal suffrage would be to strengthen the Clerical party. In Liège, where the labor troubles began, there was no organized labor party. The repressive zeal of a senator, who induced the police to interfere in an unnecessary and unusual manner, began the trouble. The riots excited the public mind in Belgium more than any event in recent times. The authorities were at first inclined to believe that propagandists of German Socialism had instilled discontent among the workingmen, and many Germans were expelled as suspected teachers of revolution; but the conviction gradually grew in the public mind that in this wealthy country (which, under the international guarantee of peace, had grown rich by peaceful arts, while its neighbors suffered from burdensome armaments and exhausting wars) the classes that had produced its wealth were sinking into intolerable wretchedness, and had been driven by blind despair to a Jacquerie such as has hardly been witnessed in this century. The first thoughts of the legislators were to render public order more secure by placing effective restraints on unruly spirits, and thus prevent further outbreaks. Government bills were passed imposing the penalty of imprisonment from a week to three years for provocations to riot, crimes, or misdemeanors. Another restricts the sale of firearms and regulates the carrying of weapons. One was passed also authorizing the Government to watch over the manufacture, storing, sale, transport, use, and possession of explosives and engines for using them. Authority was given also to advance money at $3\frac{1}{2}$ per cent. to persons whose property had been injured in the labor riots. On June 4, a Socialist editor at Ghent, named Anseele, was convicted of contesting the obligatory force of the laws in urging the relatives of soldiers to use their influence with them to induce them not to act against the workmen during the strike, and was condemned to six months' imprisonment. The same day Alfred

de Fuisseaux, a prominent agitator for universal suffrage, was condemned at Brussels to one year's imprisonment for having, in a pamphlet entitled "Le Catechisme du Peuple," denied the obligation of law, attacked the constitutional authority of the King, and insulted his person. The last-named prisoner escaped from the country. In July, seventeen men were convicted for burning the glass-works at Roux in March, and sentenced, two to imprisonment for life, two for fifteen years, three for ten years, and the rest for shorter terms. On Aug. 10, Wagener and Rutters were sentenced to five years' imprisonment for instigating the rioting at Liège. The Supreme Court, however, quashed their sentences, though it rejected the appeal of Schmidt and Failleur, two workmen who were condemned to twenty years' penal servitude for pillage and incendiarism at Baudoux.

On April 25, a workmen's congress, attended by 500 delegates, from 104 affiliated societies, met at Ghent, and resolved that a demonstration in favor of universal suffrage should take place at Brussels on June 13. The parade, in which from 80,000 to 100,000 workingmen were to take part, was prohibited by the burgomaster. The Socialists then determined to have a demonstration in all the towns of South Brabant, or, if they were forbidden, to call a grand congress at Brussels. The provincial demonstrations were prohibited; so, on June 13, a congress of 4,500 delegates met in Brussels to discuss the action of the authorities in forbidding demonstrations in favor of universal suffrage, although monster parades on the school question had been permitted in 1884, and to consider other urgent questions. It was resolved to address a manifesto to the nation, to contest all elections, and to create co-operative societies everywhere. Such societies were already in successful operation in the Ghent district, founded through the efforts of Anseele, the young Socialist leader, who had just been condemned to imprisonment for a press offense, and who now presided over the congress. Three resolutions were adopted by acclamation: (1) The agitation in favor of universal suffrage is to be continued; (2) a general strike to be begun as soon as the Workingmen's party has acquired sufficient strength; (3) to organize a fresh monster demonstration on August 15, the date of the national holiday at Brussels. The workingmen's procession, in Brussels, took place, without hindrance from the authorities, on August 15. There were 2,300 workmen from Ghent; 660 from Liège; 4,000 from other collieries; and in all, 30,000, who paraded the streets in an orderly manner for four hours. The authorities had forbidden cries or inscriptions for the republic, but permitted the red flag. The placards demanded universal suffrage and an amnesty for those who had been condemned on account of the disturbances in March. A commission was appointed to investigate the con-

dition of the working-classes, which, in its report, established the reality of many of the grievances of which the work-people complained. In Liége and other industrial centers it was found, for instance, that employers compelled the laborers to purchase supplies from their "truck" stores, at prices from 50 to 90 per cent above the usual retail rates.

The commission to inquire into the condition of industry included leading men of both parties, such as Senators Malou, Balisaux, and Montefiore; Deputies Levi, Buls, D'Andrimont, Jacobs, Meens, Pirmez, Sabatier, and Saintelette; economists, such as Profs. E. de Lavelye and Hector Denis, and MM. de Molinari and De Hauteville, but contained no representative of the working-class.

At the opening of the Chambers, on November 9, King Leopold, in the speech from the throne, announced that the Government would submit bills favoring the free formation of professional bodies to establish between workmen and employers bonds of union, in the way of conciliation and arbitration councils; to regulate the labor of women and children; to repress abuses in the payment of wages; to facilitate the construction of proper dwellings for laborers; to develop insurance institutions for the sick and helpless; to check intemperance and immorality; and to suppress adulteration in articles of food. The address also held out the promise of amnesty for those convicted of offenses connected with the March disturbances.

The School Question.—Dr. Ronvaux, the deputy burgomaster and superintendent of the communal schools in Namur, at a congress of school-teachers held in that town, delivered a toast to the King, in which he said that the school-masters and mistresses, who were doomed to martyrdom by the new school-laws, and who were more patriotic than the ministers that surrounded him, greeted their sovereign just as the gladiators about to die in the arena were wont to salute the Roman Cæsars. For this speech, on the ground that it was insulting to the King, the ministry removed the orator from his offices, and thereby roused the indignation of the Liberals throughout the country. This incident and the labor disturbances divided the attention of the public. An attempt was made to unite the different factions of the Liberal party on the old question of secular education, and prepare for the return of the old party leaders to power by electing Ronvaux as a representative from Brussels, to succeed Vandersmissen, who had brought disgrace on his party by killing his wife out of jealousy, and was on trial for homicide. The radical advocates of universal suffrage, however, refused to reunite with the moderate Liberals, and placed their own candidate in the field.

BEUST, Count Friedrich Ferdinand, Austrian statesman, born in Dresden in 1809; died at his country residence at Altenburg, near Vi-

enna, Oct. 24, 1886, of apoplexy. He was descended from an old Brandenburg family, and entered the diplomatic service of Saxony in 1831. After filling various high posts, among them that of minister to London, he became Saxon Prime Minister, holding the portfolio of Foreign Affairs, in 1849. During the reactionary period following the Revolution of 1848, Baron Beust, by severe repressive measures, presented himself to the Liberals of Saxony as the head of the Conservative reaction, though his own instincts were always liberal. He used coercion only as a temporary expedient that he considered necessary, and after the accession of King Johann, in 1854, adopted a liberal policy. During the ten years preceding the Austro-German War he and Count Bismarck were the leading exponents of two rival policies in Germany. While Bismarck was working for the predominance of Prussia, and the economical and political consolidation of the German states under her lead, Beust endeavored to bring about a league of the smaller states strong enough to resist either Austrian or Prussian domination. After the defeat of the Austrian army in 1866, the Emperor of Austria called to Vienna the great antagonist of the German Chancellor, and placed him at the head of the ministry, in order that his statesmanship and diplomatic address, for which he had a reputation throughout Europe, transcending that of any Austrian or of any German statesman except Bismarck, might find a way to avert the threatened dissolution of the Hapsburg monarchy. His conferences with Deak, in 1867, convinced him that there was no means of keeping Hungary within the empire except by granting her complete legislative independence in her domestic affairs. He evolved a radical and far-reaching plan, and carried it out with surprising rapidity and completeness. The dualistic system, of which he is generally accounted the originator, was proposed and advocated by him as a necessary compromise. This change in the Constitution of the empire was followed by changes not less thorough-going in the political system of Austria. Parliamentary and responsible government, and a transfer of political power, were accomplished so thoroughly that, although the royal prerogative has regained its ascendancy amid the conflicts that have arisen later, the aristocracy and the clergy, whom Beust mortally offended, have not recovered the powers and privileges that were curtailed under the Liberal *régime*. Count Beust's fixed aversion to Prussian predominance in Germany, sharpened by personal animosity toward the successful rival who had defeated his dearest plans, brought about his fall, and left others to cope with new combinations and new forces in the dual empire, that have altered the system that he created. In 1870 he endeavored to bring about an alliance of Austria with France against Germany; but the Hungarians, under the lead of Count Andrassy, defeated

this scheme. In 1871 he resigned the post of Chancellor. He was sent as ambassador to London and afterward to Paris, but attempted to take no further leading part in political affairs, and soon retired into private life. In his villa at Altenburg he amused himself with literary and artistic occupations, for which he had early developed a taste. In the beginning of his career he had composed a collection of "Musical Trifles," and written a book of songs, besides other poems, and after his retirement he occasionally published a reflective poem. He also wrote comprehensive "Memoirs" of his life and political activity, explaining and defending the ideas that he had striven to carry out, in the future realization of which he still believed.

BIRDS, SONGS OF. Birds are the only creatures that share with man the faculty of expressing fine shades of feeling by the voice. There are no dumb birds, and those that do not sing still have some of the tones that form the language of birds, such as notes of warning, cries of distress, calls to mate and young, and sounds that render emotions both defiant and peaceful, and are heard in their strifes and in their amours. Most naturalists regard the song of birds as a manifestation of the tender passion, and as an accompaniment of nidification and incubation. While this view may be in the main correct, it must be borne in mind that birds have an inherent aptitude for song and take delight in the exercise of this natural gift, and in caged birds there is a spontaneous overflow of energy in the use of this faculty the year round.

That such minute creatures as many of the best singing-birds should have such continuity and volume of voice is a phenomenon that can not be explained in a completely satisfactory way, though the powerful mechanism of song is to be accounted for in a measure on anatomical grounds. In the first place, singing-birds have a double larynx, one at the top and the other at the lower part of the trachea, and it is the latter that is especially active in the production of voice. This broncho-tracheal larynx (or syrinx, as it is technically called) varies somewhat in structure in different species of birds; but the voice-production is mainly on the principle of a reed instrument. The pitch of the note depends on the tension of the syringual membranes by muscles that are numerous and powerful relatively, and also on the length of the tracheal column of air. The timbre of the tones depends on the harmonic overtones, and the sounds are modified by lingual and pharyngeal movements. The immense variety of tones is due also to the rotary and lateral movements of the vocal apparatus (syrinx), effected by several pairs of muscles, which regulate the tension of a fine membrane that acts something like the reed in a clarinet. The amazing continuousness of the song is explained by the reserve supplies of air, as well as by the economical use of breath. Birds have air-sacs in the neck, chest, and abdomen—nine in all—

which communicate with the bronchial tubes, and even the feathers and bones contain air. The tracheal rings are complete, numerous, strong, and very elastic. The world-renowned philomel has a trachea only about one inch and a half long, which would not admit the passage of anything larger than an ordinary knitting-needle, and yet from this little tube issue those clear and penetrating tones which can be heard on a still night for nearly a mile. Still, with all these anatomical facts in view, whoever has listened to the unbroken tumult of notes of the nightingale in full song in his native bower, must have realized that there is something yet to be learned in instrumental acoustics.

The comparative merit of a bird's vocal performances depends on the following points: compass, variety, continuity, volume and quality of tone, including purity, gayness, plaintiveness, and general power of execution. The skylark, for instance, has a relatively small compass of voice, and often fails in purity of tone; but within its limited range it has almost incomparable power of execution, and possesses a variety of combinations of notes and a gayety of song seldom equaled. The Virginia cardinal has a mellow quality of tone which is surpassed only by the richest voices; but it has such a limited variety of notes that it can only be assigned an inferior rank as a songster. The American wood-thrush, although it possesses but a small variety of notes, has a quality of tone that is so highly musical as to place it among the finest singers.

It is a rule, with few exceptions, that large birds do not sing, and that the famous songsters are not only small but have plain plumage. Nature seems to have bestowed on the male bird exclusively powers of song as well as finer plumage. Occasionally a female essays the musical rôle of the male, but always with inferior success. In rare instances a female will persist in her newly assumed rôle, and by dint of practice attain to something like the song of the male. In general it may be said that the young bird inherits an aptitude for song from its father. It pays attention to him, to the exclusion of the notes of all other birds, and it learns its lesson with astonishing rapidity, so that if it be separated from its parent a few weeks after it is hatched, it still retains and at some future time faithfully repeats the song that it heard while a nestling. So largely is this an imitative performance, however, that if the nestling be allowed to hear only the song of another bird instead of that of its parent, it will learn a song foreign to its species, and in some cases will even repeat with fidelity the tune of a bird-organ instead of the native lay of its kind.

The song of birds is never a gift outright, but is gradually developed and finally perfected by long and patient practice. The first essays of the young bird are very imperfect, but it perseveres until it can render the paternal strains with full effect. The song is again lost during

the annual molt, and has to be reacquired with efforts that are not always apparent, for the bird practices in an undertone until it can again venture on a full-voiced performance. The song of the same bird changes also with the climate, locality, and season of the year, and reaches its full richness in spring-time. It also changes from year to year, and gradually improves under favorable conditions until the bird has reached the maximum development of its muscular and nervous system, and even then it may be developed still further in birds which have special powers of imitation. Most singing-birds have some faculty of imitation of the notes of other songsters, though it is confined chiefly to the notes of their own species, so that the general character of the song is preserved from generation to generation. There is a remarkable difference in the extent and quality of the song among individual birds of the same species, for though they may all belong to a singing family, it by no means follows that they will all have talent, and it even happens that, of two birds out of the same nest, one will greatly excel and the other will prove mediocre in song. In general, birds that have fully formed their song do not imitate much except through rivalry on special occasions. The analysis of the song of particular birds which is here given is based on a study of their notes in a native as well as in a captive state, and many of the tones here described are only to be heard as the reward of nearer acquaintance of the songsters in their wild haunts.

The Nightingale (*Luscinia philomela*).—The nightingale is the king of songsters, and its song presents difficulties of analysis, for it is both rapid and intricate. This rapidity of execution is a striking feature and it can be safely said not only that no other bird, but not even the skilled hand of man applied to a musical instrument, can produce in single succession, in a minute more notes than are poured forth from the throat of this wonderful little creature. The volume and compass of its voice are equally remarkable in view of the fact that it is not much larger than an English sparrow. Its loudest tones can be heard as far as those of the human voice. The anatomical reason for this is the unusually powerful development of the syringeal muscles, which in two specimens that the writer dissected were found to be especially well adapted for the production of tension of the true vocal membranes of the syrinx. One who has the rare opportunity to study and record the notes of a nightingale in full song will find that they number from twenty to thirty, and that these original and distinct tones are differently arranged and rearranged so as to give an almost endless variety. There is no regular round of song, as with many other birds, but changes and surprises follow at every turn, so that the most familiar ear can not anticipate that which is to come, although the separate notes of which all the performances consist may be recognized.

In other words, the nightingale's musical performances are real improvisations. The actual range of the voice is about two and a half octaves, and its flexibility is most remarkable throughout this range. The only effort is not in transition but apparently in the repression of its voluminous notes. As regards the retention and use of its breath and the phrasing of its passages, no artist could be more successful. Long strains follow one another without interruption of sound, and a whole minute may elapse without any perceptible break in the melody. Its most striking effects are attained in its staccato passages, which display such power of attack, such brilliancy and rapidity, as to merit the figurative description of vocal pyrotechnics. They are explosive sounds, and can not fail to excite agreeable surprise. Another of its notable feats is its crescendo, which sometimes consists in a very gradual increase in strength and fullness of song throughout long passages, but it is more frequently the rapid swelling of a single long note which during four or five repetitions passes from the smallest to the greatest volume of tone that the bird commands.

The timbre of the nightingale's voice is so peculiar that it can readily be distinguished from that of all other birds, and its chief characteristics are mellowness and brilliancy. The tones of birds are probably modified in a certain measure by sounds in surrounding nature. The nightingale is wont to frequent small running streams, and the liquid and purring quality of its tones would seem to be but an echo of one of the constant natural sounds of its haunts. But it seems to take pleasure in an occasional strong contrast produced by harsh notes suddenly interjected in the midst of its musical volleys. These rough sounds resemble somewhat the crinkling of stiff paper, or even the grating of pebbles when rubbed against one another. The nightingale seldom deigns to imitate other birds, although it has great ability in this way. When challenged by one of its kind in song, it will seize upon the finest passage of its rival and reproduce it with still finer execution. It shows great emulation even in caged life, and the writer has known it to out-sing and silence both the gay lark and the game mocking-bird, and when in full song it absolutely refuses to yield its place of first singer in the feathered choir.

The following are the principal notes of the nightingale's song:

1. A long sound like *tiou-tion*, distinctly articulated in different keys, and with increasing loudness several times in succession, and usually on a rising scale, is a characteristic note, which at times has such a plaintive tone as to justify the term "melancholy," which the poets have often applied to this part of the song.

2. The scale is a long series of notes, which rise or fall through the whole compass of the voice with astonishing power and rapidity.

8. The chopping-note is a low-pitched and abrupt note, sounding like *chop, chop*, uttered several times in quick succession, and is intermediate in quality between the truly musical and the simply noisy tones of the nightingale.

4. The needle-note is the most acute of all the bird's tones, and is seemingly produced during inspiration. The finest cambric needle would be coarse compared with the delicate thread of this long-drawn sound, which is so acute at times as to be scarcely audible; and as it is often broadened to the average volume of tone again with a swift descent, the effect is most brilliant.

5. The gnarl is another characteristic note of the nightingale, and may be compared to the sound of a knotted string drawn rapidly through a small aperture in a thin sounding-board. The gnarled notes are always quick and forcible, most commonly given on a rising scale, and form one of the striking contrasts in song in which the bird delights, and are often immediately followed by the sweetest tones.

6. The water-notes are delightful, liquid, purling sounds, interspersed at frequent intervals throughout the performance. These water-notes are unequaled even by the finest tones of this kind known to be produced by the most cultivated canary songsters. The nearest approach is the water-roll of St. Andreasberg canaries, which has been developed for so many generations by bird-fanciers, by careful selection, and by furnishing nightingales as instructors for the canaries.

7. The continuous roll is possessed almost exclusively by the canary, and the nightingale is one of the very few birds that share to some degree the faculty of rolling at any pitch of the voice uninterruptedly.

8. The flute-notes are long, sweet tones, which have rare purity and a most charming effect, and are repeated at all points of the compass of the voice.

9. The rattle is a note in which philomel especially delights. It is confined to the lower range of the voice, and consists of a prolonged rattle, which at the same time has a liquid sound, as if small, hard substances were shaken in a vessel containing liquid. Some nightingales make much use of this musical rattle as a sort of accompaniment to their higher notes.

Any account of the song of the nightingale would be incomplete without some reference to that of a larger species of the bird, found chiefly in eastern Europe, and much fancied by connoisseurs. The bird referred to is *Luscinia major*, and it is about a third larger than the common nightingale, of much stouter build, and it is slightly mottled on the breast. The larger bird has not the same remarkable variety of notes as the smaller one; but it has louder and longer tones of equal purity and expression, and even more wonderful talent in the modulation of its song. Its long, quivering tones are so rich and full of pathos, that they are sure to captivate the listener, who will

also be astonished at the deliberation and perfect command of voice with which the various inflections of the song are rendered. At the height of its song its artful modulations and distinct phrases approach in character to musical compositions. The nightingale has been compared to the violin, and the larger species to the violoncello, which has qualities like the human voice; and it has been said that, while other birds whistle, *Luscinia major* alone sings. This study of the song of the nightingale, although more complete than any that the writer has been able to find, does not by any means exhaust all the tones or describe all the notes of this entertaining bird.

The Canary (*Carduelis canaria*).—The canary, of all caged birds, is the most universally known and liked. The Germans have given great care to the breeding of this universal pet, and they supply most of the markets of the world with the finest birds from the Harz Mountains, and more especially from St. Andreasburg, which is celebrated for its educated canaries, which are never allowed to hear any but the best singers of their own kind, and are also kept near such artistic performers as larks and nightingales, so that they acquire occasional notes from them, in addition to the parent-song. The canary has a great faculty for imitation when young, but, after it has matured fully in one manner of voice and song, it seldom changes. If removed from the nest before it has heard the parent-song, and raised alongside of some other singing-bird, it will often sing the foreign notes, or it will even learn to pipe a tune from a bird-organ, and the writer has heard one thus educated pipe an operatic air to the complete exclusion of its own song. In fact, the ordinary song of the bird retains but few of the notes of the original canary from the Canary Islands. An analysis of the song of the canary shows that the original notes, or distinctly separate tones of which it is composed, number from ten to twenty. Few birds have all these distinct notes, and those that have a dozen separate tones are considered to possess a full song. The canary does not improvise or change its song, but as a rule it repeats the same notes in the same order. This round of song may be slightly changed from one season to another; but this is the exception, and it is very rare that a new note is added after the first year. The following are the principal notes of the canary's song:

1. The roll is the most characteristic of all the canary-notes. No other bird is known to possess this roll in such perfection as the canary; and, of the myriad songsters of the great forests, those that have any use of this note can be counted on the fingers of one hand. This even and continuous roll is as perfect as the trill of any instrument, and can be produced at any pitch within the range of the voice. The same bird often gives it pitched in five or six different ways, with pleasing swell and modu-

lation; in certain St. Andreasburg canaries it has been cultivated almost to the exclusion of other strains, and in most canaries it forms the burden of the song.

2. The flute-notes are long, clear, piping tones, of flute-like quality, usually repeated several times in immediate succession. The finest of these tones have been acquired from the nightingale, but they are more acute, and by no means as full as the original model tones, of which they are imitations.

3. The water-notes are liquid and bubbling tones, in the form of a trill. The bird-fancier considers the water-roll one of the finest notes of a good singer. Only occasionally is a canary found having this note well developed, and it then adds a novel attraction to the song.

4. The most perfect of the bell-notes are almost a complete deception to the ear, so much do they resemble the tinkling of small bells. The birds that have the bell-notes well formed are greatly prized in St. Andreasburg, command a high price, and are seldom brought to this country. The *Procnias carunculata*, of Brazil, and the *Myzantha melanophrys* of Australia, have natural bell-tones; but in the canary these notes are acquired in some way of which the writer has never been able to gain any account. The only member of the feathered tribe that could have served as an instructor to so little a bird as the canary, is a very small South American bird, having perfect bell-notes; but it very soon dies in captivity. The canary, then, though somewhat automatic and imitative in its song, and devoid of originality, is still to be numbered among the foremost songsters.

The Mocking-Bird (*Mimus polyglottus*).—The mocking-bird is accredited with greater musical gifts than any bird of the new continent, and even so good an authority as Audubon inclines to the belief that it surpasses all other birds in powers of execution, the nightingale not excepted. The natural tones of the mocking-bird are similar to those of large numbers of the thrush tribe, and though numerous they do not compare with the variety of its acquired notes. The bird has well earned its name by a remarkable display of mimetic talent, and there are few birds of the American forest that it can not imitate with some measure of success. Its superiority in song depends, first, on a remarkable compass of voice of about three octaves; and, secondly, on prodigious strength and flexibility of voice. It would be a mistake to suppose that every mocking-bird adopts with readiness the song of other birds. The foreign notes are partly inherited, and the richness of song is thus a gradual acquisition, and the portion of the common store of notes immediately pilfered from other birds is relatively small. In captivity the mocking-bird does not often avail himself of the opportunity to acquire the song of other birds, and it is only an occasional specimen that shows special cleverness in this way, and most of them sing

the paternal lay the last year of their lives just as they sang it the first year.

If the mocking-bird had not glaring defects as well as great merits, he might well challenge the right of philomel to the title of king. The mocking-bird is unsurpassed in compass of voice, in richness of tone, and in facility of execution; but he offends all ideas of musical sequence in his reckless medley, and interrupts his flow of melody by the most startling cacophony. An attentive listener, if familiar with the notes of American songsters, will readily distinguish the bird's original strains from its imitations, for the latter retain the mocking-bird timbre, however faithfully they may render the borrowed rhythm and inflection of tones. The mocking-bird, as a rule, intersperses the imitations throughout its song; but occasionally it seems to delight in unburdening itself of its stolen stores all at once, and then may be heard in direct and quick succession some of the notes of the robin, cat-bird, blue-jay, oriole, Virginia cardinal, quail, and brown thrasher, and this amusing medley may finally terminate with the discordant shriek of the night-hawk. Harsh tones are retained and repeated with the same apparent pleasure as musical ones, and the barn-yard fowl is as likely to be an object of imitation as the most melodious songster. At night in his native bower, when no longer diverted by many sounds, and when the moon sheds an even, silver light, the mocking-bird discourses his own sweet music in rapturous lays. In general, however, the song abounds in strong contrasts, and he pours forth a volley of tones that are high and low, long and short, smooth and rough, soft and loud, and grave and gay by turns; and with every shake of his musical throat he surprises the ear with some new combination. The performances, like those of the nightingale, are extemporized under the inspiration of the moment, and they change with the occasion. Different birds vary greatly in their attainments. There are very indifferent singers, and there are others that have more than forty distinct notes, including both natural and acquired, and these notes are blended and interwoven in an endless number of ways in song. It is extremely difficult to separate the song of the mocking-bird into its component parts and describe them in words. The following analysis has reference more especially to the native song which is common to the whole species: The voice, as already said, comprises about three octaves, and over this entire range the facility of performance seems to be equally great. Both the major and minor keys can be detected, but more especially the latter, and occasionally a musical interval is struck even in the wild song. Distinct musical intervals are rare among birds, and the cuckoo affords a good instance of notes pitched on an interval. The following are the chief strains:

1. The scale is always a rapid rising or falling series of tones of equal length which may

extend over the range of an octave. It is accidental if some of the tones correspond now and then with our natural or chromatic scale, for they are quarter-notes or perhaps still smaller fractional divisions of whole notes of the diatonic scale. The tones are struck off with great force and rapidity, for it is one of the bird's bravura passages.

2. The trill as produced by the canary and the nightingale is not a part of the *répertoire* of the mocking-bird. He has instead, however, a magnificent shake which he can command at any pitch of his voice, and which is unequalled even by that of the blackcap.

3. The piping tones are of varied altitude, volume, and timbre. In the main they correspond to the flute-notes of the nightingale, but they resemble more nearly certain clarionet-tones. They are very fine notes, and as smooth as the whistle of the blackbird or the mellow pipe of the Virginia cardinal.

4. The canary-tones are sometimes mistaken for imitations of the canary, but are true mocking-bird notes. They are very delicate and acute sounds, more thread-like often than the finest canary-tones, and coming from so large a bird they both surprise and amuse.

5. The gutturals are forcible and rough tones, which form a rude setting for the more brilliant parts of the bird's song. They have been compared to the rubbing together of bits of sand-paper or to the sound of a grindstone in use, and, like other native tones, they have been mistaken for imitations, being likened in this instance to the creaking of a rusty hinge. They correspond to the rattle of the nightingale, but have not the same musical character.

6. Almost all the inflected tones are preceded by a brief series of notes, which are short, rapid, and pitched generally lower than those to which they serve as a prelude. The series contains from three to twelve notes, and is followed by a long, modulated tone which completes the phrase, and in turn is followed by a very perceptible pause. Another series of short, rapid notes and then a long inflection, and again a pause occurs; and in this manner a great part of all the singing is conducted. Unfortunately, the phrases are so short and the pauses so distinct as to rob the song of that continuous nature which is so impressive in the nightingale's performances.

7. The modulated tones constitute the chief charm of the mocking-bird's song. They are prolonged intonations expressing every musical conceit and every shade of feeling of which the bird is capable, and they extend throughout the compass of his voice and display every quality of his vocal organ. They are by turns plaintive and gay, serious and comic, defiant and caressing, and are so free from effort and so spontaneous that they strike the hearer with wonder and admiration. In the combination of a given number of notes the nightingale has more ingenuity, but in the modulation of single tones the mocking-bird has unequalled tact.

Finally, in assigning to the mocking-bird his just rank among song-birds it must be considered that his musical style is broad, and his taste almost universal. He takes the whole of nature for his song-book, and borrows not alone from the birds of the air; the rippling stream, the rustling leaves, the sighing wind, and all sounding things, animate or inanimate, yield him inspiration.

The Skylark (*Alauda arvensis*).—Numberless poetic lines have been written about this “minstrel of the sky,” and literary favors have been about equally lavished upon him and the nightingale. The two birds differ totally as to the time, place, and manner of their song. One prefers the dimness of the night, and the other the full blaze of the noon tide sun; one seeks the closest shade, and the other the open expanse of the skies; one sings while perfectly still, and the other while in rapid flight toward the sun; one is the most pathetic of songsters, and the other is the most joyous of warblers. The skylark is by nature both bold and gay, and in his native fields he fights and sings the live-long day. His music is as sprightly as an Irish jig or a Scottish hornpipe, and he dashes along at such a rate that it is almost impossible to follow the quick windings of his song. The air seems to be full of musical vibrations, and it sounds at times like two or three birds singing together, and distantly reminds one of a bagpipe with chanter and drones in full blast. There is a pleasing, low, humming sound, which serves as an accompaniment, to his beautiful high tones, and his rippling song is only broken by an occasional brief pause. It is not difficult to understand the great popularity of the skylark, for he has two most delightful qualities—sprightliness and variety. A careful study of his vocal performances leads to several unexpected and interesting conclusions. In the first place, the seeming maze of his musical sounds can be reduced to a few fundamental tones; secondly, the range of his voice, which one would suppose very great, judging from his success in song, is found to be relatively very limited; and, finally, the whole genius of the bird and the secret of his musical superiority may be described as an incomparable faculty of composing much out of little—the ability to combine a few notes into an endless variety of musical phrases. Four fifths of all his singing is done within the narrow limits of three or four notes of the diatonic scale, and it is a question whether the utmost range of his voice is not included within a single octave. All these facts are obscured by the rapidity and variety of his combinations of notes, and popularly he is ranked as second only to the nightingale in song. The principal component tones of the skylark's song are as follow:

1. The continuous warble is the strain most constantly heard, and has a superficial resemblance to the roll of the canary, but it is radically different in its formation. It is neither a

thrill (i. e., the even alternation of two contiguous notes) nor a tremulo. It is the rising and falling sequence of fractional notes, which are probably less than quarter-tones, and which on this account, and also owing to their extreme rapidity, impart a vague character to this part of the song, so that the notes can not be followed by the ear *seriatim* as in those portions having tones of longer intervals.

2. The cantabile notes are long-sustained and delightfully inflected tones, which have a true singing character. Few birds are capable of sounds of such a song-like nature. These notes are so rich that they impart to the song, which without them, would occupy a secondary rank, a musical value much like that accorded to the performances of the nightingale and mocking-bird.

3. Finally, to sum up the musical gifts of the skylark, it may be said that he has the sprightliness of song of the goldfinch, the merry jingle of notes of the bobolink, a genius for combination of tones possessed by none but master-songsters, and a song-like timbre of voice that is unique.

The accompanying illustrations of the vocal apparatus of singing-birds are from dissections made by the writer, and are of life-size. Fig. 1 represents the vocal organs of the Virginia nightingale, as it is popularly called,

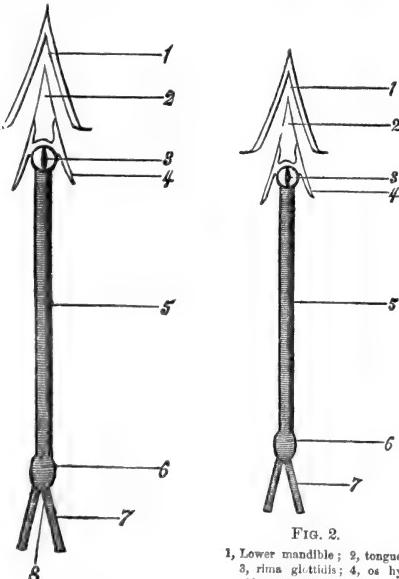


FIG. 1.

1, Lower mandible; 2, tongue; 3, rima glottidis; 4, os hyoides; 5, trachea; 6, syrinx; 7, bronchia.

though it is known to the naturalist as *Cardinalis Virginianus*. It is a very handsome bird, about the size of the robin, with scarlet plumage and crest and a red beak, and it has a fine, mellow voice. The figure gives a posterior view, with all the surrounding parts re-

moved except the lower part of the bill with the tongue and its attachments. The bronchi open into the lower larynx (syrinx) separately, thus forming two glottides, and the vocal membranes are elastic reduplications of the lining bronchial membranes. There is a thin partition of the syrinx into equal halves by a septum which is cartilaginous in the cardinal—in the canary and in the linnet, although in larger birds it is bony and forms the cross-bone (pessulus). Extending from this pessulus downward on the inner side of each bronchus in larger birds is a distinct membrane (*membrana tympaniformis interna*) which, through tension and relaxation, serves to modify the vocal sounds. This membrane is merely rudimentary in the figures here given, and the bronchial rings are not completed by membrane as in some other instances. The trachea in the birds here described is composed of about fifty rings complete and very elastic, and both the tracheal and bronchi are capable of considerable increase in length by muscular effort on the part of the bird. There are no vocal cords in the upper larynx, which has an opening (*rima glottidis*) controlled by a pair of muscles.

Fig. 2 presents a similar life-sized view of the vocal organs of the canary-bird. The cross-bone in the syrinx in young birds at least appears to be little more than a cartilaginous septum, and the tracheal rings are still distinct and about fifty in number, and the bronchial rings, likewise, are apparently complete, and there is no visible tympaniform membrane. In other respects the parts are the same as in Fig. 1, and the numbers correspond in both figures.

BOLIVIA, an independent republic of South America, area 772,648 square miles. The aggregate population numbers about 2,250,000, and is composed largely of the Quichua and Aymará Indians, the former being direct descendants of the Incas. Their proportionate division is, Quichuas, 50 per cent.; Aymarás, 25 per cent.; cholos, a Spanish and Indian mixture, 18 per cent.; and half-castes, 7 per cent. This strange and interesting race lives in villages called *comunidades*, under a governor, or alcalde, who is one of their number. They pay a tribute of from four to ten Bolivian dollars a year, those of age who can read and write being exempt from payment, and admitted to the ballot.

Travel in Bolivia is comparatively safe, for the Indians are not dangerous, and, though the last trace of malice toward the Spanish race has not entirely disappeared, they are grave and deferential to *caballeros*.

Government.—The President of the Republic is Don Gregorio Pacheco. His Cabinet is composed of the following ministers: Foreign Relations, Dr. Jorge Oblitas; Justice, Public Worship, and Instruction, Don Martin Lanza; Finance, Señor H. Gutierrez; Interior, Dr. M. M. Dilledina; War, Col. Severo Zapata.

The Bolivian Minister at Washington is Don Casimiro Corral. The Bolivian Consul-General at New York is Don Melchor Abarro; the Consul at New Orleans, Señor J. P. Macheca; at San Francisco, Señor F. Herrera. The American Minister Resident and Consul-General at Sucre is the Hon. W. D. Bloxham, and the Consul at La Paz, S. Alexander.

Army.—The strength of the Bolivian army, including 1,021 officers of all ranks, is 3,021.

Finances.—The national indebtedness amounts to \$10,000,000. The income of the nation in 1884 was \$2,344,796; in 1885, \$2,990,139; increase in a single year, \$645,343. There was established in 1886, at La Paz, a bank on shares, with a cash capital of \$500,000, called the Banco Potosí.

Railroads.—A railroad is projected to connect the Argentine frontier, near the town of Quiaca, with the Bolivian city of Potosí. It will run along the right bank of Paraná river to the port of Barranquera. Chili is also actively pushing work on the railroad that extends from Antofagasta into the interior. It had reached, in 1886, beyond Calama as far as Anil, and was rapidly approaching La Poruña, opposite Santa Bárbara. Trains were arriving within two miles of the river Loa, where an iron and a wooden bridge were to be built.

Telegraphs.—There were in operation in 1886 the following stations connecting with the Argentine system: Cotagaita, Huambaca, Potosí, Sucre or Chuquisaca, La Paz, and Tupiza. Communication with La Paz may also be had *via* Mollendo. The total length of lines was about 400 miles.

A Landlocked Republic.—The result of the war on the Pacific deprived Bolivia of coast and seaports, and likewise of the great wealth of nitrate and guano in the districts of Cobija and Tarapacá. The exact course of a portion of her southern limit, separating Bolivia from the Argentine Republic, has been for some time undetermined; hence the main outlets for Bolivian trade are through Chilian, Peruvian, and Argentine territory. The most accessible port of the former is Arica, which involves a tedious land-transit of 240 miles from La Paz to Tacna, which is in railroad connection with Arica, a distance of forty miles. The traffic over this route, however, has of late years become reduced to the transportation of a portion of the mining products from the department of Oruro, and to the mule-post from La Paz to Tacna, regularly performed in five days, while the great bulk of trade from the La Paz district is by steamer across Lake Titicaca and Peru, and *via* the Puno-Arequipa Railroad to Mollendo. The third and longer route is south-westerly through the Argentine Republic to Buenos Ayres, and, in pursuance of a treaty whereby Bolivia reduces the import duty 50 per cent. on goods coming from the Atlantic against the Argentine Republic, granting gratuitous right of egress through her territory, the larger part of the productions of the de-

partments of Potosí, Chuquisaca, and Tarijá, consisting almost entirely of minerals and metals, is drained through the Argentine Republic in preference to Chili. This shifting of trade from the Pacific to the Atlantic, and the consequent decrease of business on the former coast, promoted, in a large measure, by political spite, has been felt so keenly that a new impetus is imparted to the project of putting La Paz in railroad connection with the coast, the line running through Oruro to Tacna, thereby recovering and controlling the entire trade from the Pacific side.

Cinchona - Bark.—The most important pursuit in the tropical or lowland districts, which has developed into a permanent industry, is the cutting and exportation of cinchona-bark, the richest in quinine. But the most accessible trees having become exhausted, the bark is no longer derived from the forests, and the business has become a systematic, scientific cultivation. The credit of bringing this nursery culture to a high degree of perfection is largely due to Otto Richter, who, besides being otherwise largely interested in Bolivia, is the leading bark-merchant, his four *haciendas* or *quinalas* in the Mapiri district, having grown already more than two million trees. The bark business, however, has been very much depressed of late years, on account of the exceedingly low price to which quinine has fallen.

Coca.—Hardly of less importance are the coca-plantations from the leaves of which plants the mysterious cocaine is extracted. The great progress made in modern medicine in the use of this drug, not only in various medicinal forms, but also as an anaesthetic, has created a large demand for coca-leaves. The plant only flourishes in moist climates, and is seldom found in the deep valleys of the Andes. It is cultivated in rows like Indian corn, and after two years' growth the bush attains its full height of from five to six feet, bearing green leaves about two inches long, with white blossoms and red berries. The leaves are gathered several times a year, and dried in the sun with great care before being packed for exportation, the bushes produce for many years, when finally the planting of a fresh crop becomes necessary to preserve the good quality of the leaf. Besides its local use by the Indians, who masticate it with or without slackened lime, a tea is made from the plant, and the miners also chew the leaf constantly for its soothing effect. These sources of home consumption in themselves sustain many large plantation enterprises.

Silver.—The development of Bolivia's mineral resources is the most important of her national industries; for included in her prodigious mineral wealth (which numerous documents in European libraries prove to have influenced the political and monetary history not only of Spain, but of the entire commercial world), there are many gold, silver, copper, and tin ores, whose extraordinary richness gives a large profit in spite of the excessive freight

costs. The name and fabulous riches of Potosí are familiar. It was discovered in 1544, and the products up to 1572 amounted to \$250,000,000; from 1572 to 1627, to \$340,000,000; from the middle of the 17th to the 18th century the records of Potosí show an annual average production of from \$2,500,000 to \$3,500,000; and, according to data contained in letters written to the King of Spain in 1627, the compilations of Friar José G. de Acosta, and the annals of Potosí, the Cerro Rico de Potosí or Rich Silver Mountain, has produced, up to the present time, upward of £400,000,000 sterling of silver. Prior to 1825 the industry was erratic, and mining operations were frequently paralyzed by political troubles. Among the earliest interferences was the civil war in Spain in 1623. The war of independence in 1809, ending with the declaration of peace in 1825, caused another suspension in mining, and a general impoverishment of the country. Since the independence of the republic, however, mining enterprises have never been disturbed through political causes, and the irregularities occasioned by revolutionary movements have not extended to the mining regions or caused injury to corporations. On the contrary, the production of precious metals has never ceased to be encouraged and fostered, and, while miners are not required to pay taxes, the export duty is only one peso, or eight reals per mark (58 cents per 0.5065 pound avoirdupois), gold being free, and machinery imported for exploitation entirely exempt from taxation. The growth of Bolivia's leading industry, however, is seriously retarded for want of more roads, proximity to accessible seaports, timber, and a better fuel than *tagua* and *vareta* (lamadung and moss) in the silver-lode districts. But these disadvantages have been somewhat diminished, for, by means of the Mollendo-Arequipa - Puno Railroad, connecting with the steam navigation on Lake Titicaca, and the stage-roads from Chililaya (or Querto Perez) to La Paz, and thence to Corocoro and Oruro, an extensive mineral territory is made easier of access, while the steady advance of the railroad system, now extending westward in the Argentine Republic toward southern Bolivia, is greatly facilitating the reopening of the Potosí mining district, which has lately been undertaken by an Anglo-Bolivian company. The Huanchaca mine produced, in 1885, \$4,819,146 worth of silver-ores, netting the company for the year \$2,080,039.

Gold.—The gold of Bolivia is chiefly derived from placer-mines along the rivers coursing through the section of country embracing the eastern slopes and foot-hills of the La Paz Cordillera. Gold-mining is carried on in a primitive way by the natives.

The New Mining Laws.—At one of the late national conventions, the mining laws were carefully revised, and the new Spanish code substantially adopted, with the view of favoring the development of the industry and invit-

ing the investment of foreign capital. Among its fundamental provisions are:

On lands belonging to the public domain, and also on unfenced private property, minerals and mines may be sought, applied for, granted, and worked. Within fenced ground, the proprietor's permission or judicial license must be first obtained.

All individuals possessed of civil rights may apply for and obtain one or more *pertenencias* (one *pertenencia* = 100 m. square = 1 *hectárea*) in one concession, not, however, to exceed 30 *pertenencias* (or 30 *hectáreas*). The *pertenencias* constituting one concession may not be scattered, but must border on one another (having common side-lines), forming a right-angled polygon.

Priority of application has preference, however slight the difference in time.

Gold or tin deposits or other metallic minerals occurring in rivers, placers, pockets, irregular deposits, or bedded veins, on public or private lands, are subject to the same law applicable to all mineral concessions.

The claimant is owner of, and may work to an unlimited depth, all the ground, veins, deposits, and mineral occurrences, within his surface claim and within the vertical planes passed through all the surface boundary-lines of such claim.

The concessions are perpetual in duration as long as the yearly *patente* of five boliviarios (five Bolivian dollars) per *hectárea* is regularly paid.

In case of failure to pay the *patente* for a period of one year, the claimant forfeits his right, title, and interest in and to the claim; and his property is sold out at auction to the highest bidder, when the claimant receives the surplus, after the amount of his indebtedness, plus costs and plus 10 per cent. of the entire amount for which the property was sold are deducted.

New Projects.—With all the natural resources that should combine to make Bolivia an extraordinarily rich and prosperous country, it must be acknowledged that, with the exception of the calisaya-bark and coca plantations, and the operations of a few of the better regulated mining enterprises, everything is surprisingly backward. Each new administration has begun with strong endeavors to pursue a policy conducive to business activity. Liberal and numerous concessions have been granted for roads and other public improvements; yet, for the greater part, nothing but trails connect the cities, traveled by mules, llamas, and Indians. In 1868 a navigation company was formed, with a large concession from the Government, having as its object the opening up of a route down the rivers Mamoré and Madeira to the Atlantic. The scheme was promising, and would have given easy access to half a million square miles of valuable land in Bolivia and Brazil, traversed by immense rivers, forming a natural canal system possessed by no other country in the world. But up to the present time no active steps have been taken toward the realization of these designs, and the traffic in that direction, confined almost exclusively to the exportation of India-rubber and hides, is expensive and tedious. Another project is now discussed, to continue the navigation of Lake Titicaca through Rio Desaguadero to Lake Poopó, and by means of a new railroad line from Chililaya to La Paz, in substitution for the present stage-road, and

the navigation of other subordinate rivers farther south, to connect La Paz, Corocoro, Barca, Oruro, Cochabamba, Colquechaca, Sucre, and Huanchaca, with a view of diverting the Argentine-Atlantic and La Paz-Chilian trade northwestward through Bolivia and Peru to Mollendo. But it appears that certain engineering problems present obstacles to this scheme.

Commerce.—A better account of the trade of Bolivia may be found in the custom-houses of the neighboring countries than in her own. There has been no full custom-house report in Bolivia for three years; but from data derived from many sources, the total value of Bolivian exports in 1885 may be set down at \$9,745,000, and the total value of imports at \$6,820,000. The official report places the amount of duties collected during 1884 at \$618,765, and the amount up to June 30, 1885, at \$724,807.

The export of Bolivian products *via* Arica, in 1885, was as follows: to Valparaiso, 13,605 kilogrammes of calisaya-bark and 66,003 of quinine-bark; to England, 4,348 and 48,767, respectively; to France, 14,781 and 12,601; to Germany, 11,936 kilogrammes of quinine-bark; and to Peru, 70 kilogrammes of calisaya and 907 of quinine-bark. There were shipped to various countries 555 tons of ingot-copper, 515 tons tin in slabs, 46,509 kilogrammes bar-silver, 543 tons of silver-ore, and 796 tons of copper-ore. Bolivian trade with the United States is trifling. American goods are seldom met with in Bolivia. In 1883 the export to England amounted to \$1,730,637, and the import thence to \$322,778. With other countries, notably Germany and France, there is an active trade.

BRAZIL. For details relating to area, territorial divisions, population, etc., see "Annual Cyclopædia" for 1884.

Government.—The Emperor is Dom Pedro II, born Dec. 2, 1825; proclaimed April 7, 1831; regency until July 23, 1840; crowned July 18, 1841; married, Sept. 4, 1843, Theresa Christina Maria, daughter of the late King Francis I of the Two Sicilies. The Cabinet is composed of the following ministers: President of the Council and Minister of Foreign Affairs, Senator Baron de Cotelipe; Minister of Agriculture, Commerce, and Public Works, Representative Antonio da Silva Prado; Minister of Finance, Francisco Belizario Soares de Souza; Minister of the Interior, Senator Baron de Mamoré; Minister of Justice, Senator Joaquim Delphino Ribeiro da Luz; Minister of War, Representative Alfredo Rodrigues Fernandes Chaves; Secretary of the Navy, Dr. Samuel Wallace McDowell. The Council of State comprises, besides the Princess Imperial, Donna Yzabel, and Prince Gaston of Orléans, Count d'En, the following members extraordinary (limited to twelve): Senators Viscount de Muritiba, Viscount de Bom Retiro, Admiral Lamare, J. J. Teixeira, M. P. de Souza Dantes,

Viscount de Paranaguá, J. L. V. Cansansão de Sinimbi; Deputies Martin Francisco, Ribeiro de Andrade, P. J. Soarez de Souza, J. C. de Andrade Pinto, and Senators Affonso Celso de A. Figueiredo, J. B. da Cunha e Figueiredo, Lafayette Rodrigues Pereira, and L. A. Vieira da Silva.

The Brazilian Minister at Washington is Baron de Itajuba. The Consul-General of Brazil at New York is Dr. Salvador Mendonça. The United States Minister to Brazil is Hon. T. A. Osborn. The United States Consul-General at Rio de Janeiro is H. C. Armstrong, and the consul at Santos C. R. McCall.

Termination of Treaties.—The Brazilian Government has given the stipulated twelve months' notice to the Governments of Great Britain, Italy, France, Germany, Spain, Holland, and Switzerland, to terminate on Sept. 22, 1887, the consular treaties with those countries, and similar notice will be given to Belgium for termination on Sept. 4, 1888, and to Paraguay for termination on May 28, 1890. This action is understood to arise from the desire of the Government to get rid of consular intervention in regard to the property of absent and deceased persons.

Finances.—On Aug. 20, 1885, the national indebtedness stood as follows:

	Milreis.
Foreign debt	175,274,000
Funded home debt	888,199,900
Loan of 1868	22,047,000
Loan of 1879	42,668,000
Paper money	194,252,585
Advances made by a private capitalist	700,000
Total	826,156,455

On March 3, 1886, the floating debt had increased, through annual deficits, to 100,000,000 milreis, of which there were due the banks alone 86,000,000 milreis. The last two deficits had been: 1884-'85, 18,404,628; and 1885-'86, 21,702,636. In order to convert the floating debt and the 336,000,000 milreis 6 per cent. funded home debt into 5 per cent. bonds, a European 5 per cent. loan of £6,000,000 was made at 95, with 1 per cent. annually set aside toward the sinking fund. This proved a great success, the loan being subscribed to three times over. Simultaneously the Government placed with equal success on the home market a 50,000,000 milreis 5 per cent. loan at 95. The exchange on London soon rose from 17½d. the milreis to 22d. This occurred early in March. In May there were balances in the various departments aggregating the sum of 3,000,000 milreis; but to the remaining deficit there would have to be added 3,624,431 milreis for extraordinary expenses and special credits granted, thus raising the deficit to 4,607,532.

The public debt amounted to 57,000,000 milreis in 1840, to 178,000,000 in 1850, to 146,000,000 in 1860, to 522,000,000 in 1870, and to 802,000,000 in 1880. The President of the Budget Committee estimated the national indebtedness, including all floating debts, and calculating the loss of exchange on the foreign

debt, at 1,000,000,000 milreis on June 14, 1886, in his speech before the Chamber of Deputies. He remarked that the railroads alone cost the state 18,000,000 per annum; that he was not opposed to railways, but the Government ought to stop building them; and that it is a mistake to believe that all the lines are good investments. He alluded to the two new internal taxes proposed to be levied in future, the one on home-made alcoholic beverages, and the salt tax. The former, he remarked, is just, for it will protect genuine native wines against adulterated ones manufactured in the country, and the salt-tax the consumer will hardly feel.

The 2,000,000 milreis emancipation fund was distributed as follows:

	Milreis.		Milreis.
Pará.....	50,000	São Paulo.....	250,000
Maranhão.....	100,000	Paraná.....	13,000
Piauhy.....	80,000	Santa Catharina.....	15,000
Rio Grande do Norte.....	10,000	Rio Grande do Sul.....	100,000
Parahyba.....	40,000	Minas-Geraes.....	450,000
Pernambuco.....	130,000	Goyaz.....	10,000
Alagoas.....	40,000	Matto-Grosso.....	10,000
Sergipe.....	40,000	Município da Corte.....	115,000
Bahia.....	130,000	Total.....	2,000,000
Esprito Santo.....	20,000		
Rio de Janeiro.....	450,000		

The English Bank of Rio de Janeiro declared, for the second half of its business year ended June 30, a dividend of 5 per cent., making the total dividend declared for the six months 9 per cent. The Banco do Commercio, with a paid-in capital of 6,750,000 milreis, made a profit during the twelvemonth ended June 30 of 1,041,829 milreis, or 168,179 milreis more than in 1884-'85. The Banco Industrial e Mercantil made a profit of 1,120,456 milreis, being 2,257 milreis more than in 1884-'85.

At the meeting of shareholders of the Banco do Brazil, held at Rio on Sept. 21, 1886, the board of directors reported for the business year 1885-'86 a net profit of 7,442,271 milreis. The reserve fund was at the same time represented by the sum of 6,364,565 milreis, and profits held in suspense in the portfolio of mortgages 2,463,368, constituting a total thus held of 8,827,933 milreis.

Custom-House Storage.—There has been so much complaint on the part of importers at Rio about the excessively high storage rates, which were one half of 1 per cent. a month on the value of merchandise, that the Government proposes to adopt the ensuing rates instead: Up to two months, 0·5 per cent.; up to four months, 1 per cent.; up to six months, 1½ per cent.; and for a period exceeding six months, 2 per cent. a month.

Revenue Reforms.—The new taxes to be levied are to be 10 reis the litre on salt, and an excise of 50 reis the litre imposed on alcoholic beverages made and consumed in Brazil, with the exception of natural wines. The stamp-duties are to be revised. The Government is also empowered to revise the import tariff, altering the classifications and valuations and the rates on articles competing with those manufactured in Brazil, at the same time reducing the rate on articles employed as raw material by the

home manufacturers. The free list is to be curtailed, and, as the 5 per cent. sur-tax on all import duties levied since July 1, 1886, for the emancipation fund was to be turned over to general revenue, the 60 per cent. additional taxes or sur-taxes are to be incorporated with the duty rate, so that the present 10 per cent. class will become 16 per cent., the 20 per cent. 32 per cent., the 30 per cent. 48 per cent., and the 40 per cent. 64 per cent.

Commerce.—The following table exhibits the foreign trade of Brazil, expressed in milreis:

YEARS.	Imports.	Exports.
1881-'82.....	182,251,700	209,851,400
1882-'83.....	185,861,900	195,498,600
1883-'84.....	194,222,500	202,494,800
1884-'85.....	169,481,024	224,800,477
Average.....	182,941,776	208,021,819

The so-called trade balance for 1884-'85, it will be seen, shows a notable improvement. The recent coastwise-trade has been as follows:

IMPORTS AND EXPORTS.	Milreis.
1881-'82.....	158,254,400
1882-'83.....	189,497,100
1883-'84.....	181,350,900
1884-'85.....	120,426,527
Average.....	187,882,282

The decrease in coastwise-trade is due on the one hand to the increase of railroad-traffic, and on the other to the decline in value of Brazilian products.

The coffee exports for the year ended June 30 have been as follow:

PORTS.	1885-'86.	1884-'85.
FROM RIO DE JANEIRO:		
To Europe.....	1,001,817	1,250,517
To United States.....	2,430,188	2,583,200
To other countries.....	111,600	141,666
Total.....	3,543,100	8,980,388
FROM SANTOS:		
To Europe.....	1,160,766	1,676,050
To United States.....	467,216	465,238
Total.....	1,627,982	2,141,288

Shipments of sugar from Pernambuco compare as follow:

PORTS.	OCTOBER 1 TO SEPTEMBER 14.	
	1885-'86.	1884-'85.
To Europe.....	Tons. 11,219	Tons. 24,689
To North America.....	89,358	47,708
Total.....	50,577	72,342

The sugar shipments from Maceio during the twelvemonth ended June 30, 1885, were 523,689 bags. During the year ended June 30, 1886, they were: to Liverpool, 56,689 bags; to the United States, 90,828 bags; coastwise, 9,309 bags—total, 156,826 bags.

The cotton shipments from Pernambuco compared as follow:

PORTS.	JULY 1-30.	
	1885-'86.	1884-'85.
To Liverpool.....	Bales. 39,995	Bales. 71,724
To Plymouth.....	.....	12,961
To Helsingfors.....	.....	.....
To Narva.....	15,930	24,805
To Hamburg.....	12,500	.....
To Bremen.....	12,204	5,849
To Havre.....	.....	2,609
To Barcelona.....	2,947	9,073
To Portugal.....	14,302	8,856
Coastwise.....	27,235	.....
To Montevideo.....	101	.....
Total.....	125,244	134,877

The cotton shipments from Maceio during the year ended June 30, 1886, were: to Liverpool, 28,393 bales; coastwise, 8,752 bales—total, 27,145 bales.

Tobacco shipments from Bahia from Jan. 1 to Sept. 10 were 163,901 seroons, against 173,744 during the corresponding period last year.

The American trade with Brazil exhibits these figures:

FISCAL YEAR—	Exports of domestic goods from the United States to Brazil.	Imports from Brazil into the United States.
1886.....	\$6,450,738	\$41,907,582
1885.....	7,258,085	45,263,660
1884.....	8,645,261	50,265,889
1883.....	9,159,830	44,488,459

The apparent decline is attributable exclusively to lower prices.

At Rio de Janeiro, in 1885, the exports amounted to \$42,000,000, and the imports to \$25,000,000. The trade with leading European nations through the port of Rio compared as follows:

COUNTRIES.	1885.	1884.
ENGLAND:		
Import.....	\$12,500,000	\$15,000,000
Export.....	2,000,000	4,000,000
Total.....	\$14,500,000	\$19,000,000
FRANCE:		
Import.....	\$6,000,000	\$4,000,000
Export.....	4,250,000	2,250,000
Total.....	\$10,250,000	\$6,250,000
GERMANY:		
Import.....	\$3,250,000	\$3,000,000
Export.....	4,000,000	3,500,000
Total.....	\$7,250,000	\$6,500,000

From the preceding tabular statement it appears that while England has been commercially losing foothold in the Rio trade, her two Continental rivals have been gaining.

Mining.—The following notes are taken from the report published in June, 1886, by the Minister of Agriculture: In Minas-Geraes, gold-mining is continued. There are no statistics of production, but those of exportation are:

FISCAL YEAR—	Grammes.	Value.
1883-'84.....	1,166,855	£124,539
1884-'85.....	1,384,794	156,125

It is supposed that the gold production of the empire is much larger than these figures indicate, and therefore that considerable gold is smuggled.

The minister thinks the mining of iron and coal in the empire of more importance than that of gold. The province of Minas-Geraes has more iron than gold mines in operation. In the province of São Paulo, the Ypanema iron-mines are the only ones operated. These belong to the Imperial Government.

A Brazilian company is mining coal at Arroio dos Ratos, in the province of Rio Grande do Sul. This company is said to turn out about 2,000 tons a month, all of which is for local consumption. At Tubarão, in the province of Santa Catharina, an English company is mining.

At Taubaté, in the province of São Paulo, a company is working to advantage the oil-producing shales. In the province of Bahia the tufa-deposits have been worked for oil, and have yielded during the past year about 600 litres.

The Imperial Government has asked for and received tenders for the working of the phosphate-deposits on the islands of Fernando de Noronha, a small group about 200 miles off Cape St. Roque. Two concessions have been granted for deposits upon other islands.

Central Sugar-Houses.—During the business year ended June 30, the Quissama Central Sugar Estate and House has ground 40,791 tons of sugar-cane, and the company netted for the year a profit of 160,028 milreis.

The Rio Branco Central Sugar-House forwarded in August by the Leopoldina and Pedro II Railroad the first consignment of 150 tons of white crystallized sugar of superior quality to Rio de Janeiro. The manufacture on a sugar-estate of this sort of sugar, in which British Guiana has had such remarkable success, is a great step forward, inasmuch as eventually it will supersede the imported refined article. The guaranteed concessions of thirteen central sugar-factories were canceled early in September, and the guarantee on seven others suspended.

Cotton Industry.—There were in operation in Brazil, in 1886, 60 cotton-spinneries and weaving-factories, with altogether 4,836 power-looms and 225,122 spindles. Their joint share capital was 15,000,000 milreis, and they turned out, in 1885, 38,121,568 yards of cotton fabrics, at an average cost of 250 reis a yard. The concerns named were distributed as follow: in the province of Rio, 15; in Minas-Geraes, 14; in São Paulo, 13; in Bahia, 12; and 6 scattered over other provinces. They nearly all use water-power, in which the country abounds. There are but two woolen-weaving factories, one in Rio Grande do Sul and one in Rio de Janeiro. The woolen yarns are all imported.

Maritime Movement.—There entered the port of Rio in 1885 altogether 1,263 vessels under foreign flags, with a joint tonnage of 1,328,905; while there left 1,105, with 1,283,264 tons ca-

pacity in the aggregate. Of arrivals under the British flag there were 463 and departures 437; French, 114 entered and 119 sailed; German, 110 entered and 117 sailed. There arrived coastwise 1,399 vessels and departed 1,580. The coastwise arrivals under the British flag were 93 and the sailings 121; French, 30 entered and 27 left; German, 56 arrived and 76 sailed.

In November, 1885, an importing company, chartered by the Legislature, was organized in Charleston, S. C., for the development of direct trade between Charleston and South America. It began operations by ordering a cargo of coffee from Rio de Janeiro, thenceforward to be repeated monthly, so far as to supply Southern and Western markets. The company is backed by a large capital.

American Cotton Goods.—The export of American cotton goods to Brazil has fluctuated of late years. The following tabular statement shows the general movement to countries south of us, in thousands of yards:

TO—	1882.	1883.	1884.	1885.
Mexico.....	10,584	9,638	9,528	5,877
Central America.....	1,199	1,474	4,588	3,897
Cuba.....	272	471	—	3,604
British West Indies.....	833	1,041	1,208	1,283
Hayti.....	2,591	3,215	4,668	5,439
Santo Domingo.....	2,593	2,849	2,084	2,550
Brazil.....	6,994	5,902	6,267	5,606
Colombia.....	8,251	7,863	4,916	2,904
Venezuela.....	1,886	2,230	4,258	4,319
Uruguay.....	611	668	752	1,389
Argentine Republic.....	2,894	4,662	7,170	4,894
Peru.....	1,001	402	2,694	1,770
Chili.....	5,260	6,863	8,025	10,730
Total.....	44,469	47,344	56,148	53,221

Meanwhile, Spanish America and Brazil take English cotton goods as freely as ever. It is difficult for solid American cotton goods to compete with England, because the common people of Brazil prefer a flimsy, showy, well-dressed cotton cloth that is cheap, to a superior but dearer quality. The enormous consumption of Manchester goods in Brazil is thus explained.

American Locomotives.—There arrived at Rio, early in June, three Baldwin locomotives from Philadelphia, for mountain-traction, each of the weight of 45 tons, with six wheels, each locomotive being furnished with Eames's automatic brake. They are to be used on the Cantagallo Railroad.

Navy.—The Brazilian fleet in active service in 1885 was composed as follows:

VESSELS.	Number.	Crew.	Arma- ment.	Horse- power.
Ironclads.....	8	969	62	7,760
Cruisers.....	6	1,056	53	4,150
Gunboats.....	12	647	15	730
Torpedo-boats.....	9	52	—	—
Transports.....	2	167	2	500
School-ships and auxil- ary craft.....	20	555	17	980
Total.....	57	3,446	149	14,070

There were building one armored vessel and five gunboats.

Army.—The actual strength of the army in 1885, including 1,520 officers of all ranks, was 15,048; in time of war it is raised to 30,000 men. The gendarmerie corps comprises 6,847 men, 1,008 of whom are at Rio. Pending the taking of the new census, the National Guard has been disbanded.

Postal Service.—There were dispatched in 1883-'84 12,15,008 letters, of which 85,820 were Government dispatches, 49,062 post-office notifications, 11,981,776 ordinary letters, and 448,345 registered. There were received 6,250,729 letters, of which 114,110 were Government dispatches, 25,284 post-office notifications, 5,773,564 ordinary letters, and 837,771 registered ones.

Telegraphs.—In June, 1886, there were in operation 10,292 kilometres of telegraph line, with 17,994 kilometres of wire, and 170 stations. The number of messages forwarded during the year was 367,799, representing 5,598,816 words. The messages embraced 4,833 official dispatches, and 819,467 private messages. The receipts were 700,619 milreis, and the expenses 2,109,571, leaving a deficit of 1,408,952 milreis. The official telegrams would have cost, at the rate charged for private ones, 644,583 milreis.

On June 11 a new line of telegraph went into operation between Rio and the city of Bragança, province of Pará, the line measuring 4,500 kilometres.

The Government telegraph system was completed in June, 1886, as far north as the port of Vizeu (Pará), where it connects with the world's cable systems and the Belem land telegraph, putting into direct communication seventeen provinces with one another and the outside world.

The Pedro Segundo American Cable Company was formed in 1886, with a capital of \$2,000,000, obtaining valuable privileges both in Brazil and Venezuela, and having for its object the establishment of direct cable communication between the two countries named and New York. It was hoped that the new line would be in operation before the close of 1886.

Railroads.—The policy of the present Government in regard to railroads is to grant no more guaranteed concessions, to purchase the guaranteed lines constructed by foreign companies, and to lease, if not sell, all the Government railroads; the view being that administration by the state works badly, and serves chiefly to furnish places for swarms of subordinate engineers and idle employés depending upon political influences.

We have shown, in the "Annual Cyclopædia" for 1885, the Brazilian railroad system as it stood at the close of the year 1884, when there were in operation 5,657 kilometres; in course of construction, 2,402; and projected, 3,359. Early in 1886 there were in operation 7,062.175 kilometres; building, 2,267.628; total, 9,320.803 kilometres. All the lines then

in course of construction were of one-metre gauge, except 125 kilometres of 1·10 metre.

During the fiscal year 1885-'86, the earnings of railroads in Brazil generally have been on the increase. Thus the Dom Pedro II Government line earned (net) 6,917,695 milreis, as compared with 4,960,567 in 1884-'85. On the other hand, the Juiz de Fora-Lafayette line in the province of Minas-Geraes built at an expense of 19,443,801 milreis—only earned, in 1885-'86, 377,832 milreis, while it cost 933,894 milreis to work it. On the line from Rio de Janeiro to Paraná on the Rio Velho, 321 kilometres distant from Lafayette, there is direct connection with the capital over a length of 462 kilometres. The number of passengers forwarded during the fiscal year 1885-'86 was 3,430,263, against 3,125,127 in 1884; and there were forwarded on this line into the interior 147,654 tons of goods, against 143,917 the previous year, while there arrived at Rio 282,233 tons of products, as compared with 270,395 in 1884-'85.

The Western Minas Railroad Company made in April a contract for an extension of the line from Ribeirão Preto to the left bank of the Rio Grande. The Santa Isabel de Rio Preto Railroad, seventy-five kilometres in length, from the Barra do Pirahy to Santa Isabel, was finished in April. The Great Southern Railroad Company of Brazil finished during the first half of 1886 the road between Quaraihins and Uruguyana, eighty-four kilometres. The Southern Brazil Rio Grande Company had earned, during the year ended June 30, 1886, £5,361 net, more than enough to pay the interest on the bonds in England, and declare a dividend of 7 per cent. The capital of the Brazil Great Southern Railway remains fixed at 6,000,000 milreis, on which the Government guarantees 6 per cent. dividend.

Insurance.—There has been founded in Rio a domestic Marine and Fire Insurance Company, under the name of the Fluminense, with a capital of 1,000,000 milreis.

Emancipation.—According to the reports received in September, 1886, more than 65,000 slaves, sixty years of age and upward, had been enrolled as free, and it was believed that the number would reach 120,000. There was, furthermore, an impression current that a great many slaves under sixty would not be given in for the registry of slaves then in progress, and would thus become free. The institution was in fact being undermined on all sides, and few if any believe that it will last more than half the term of about thirteen years, to which the law of Sept. 28, 1885, has limited its duration. (See "Annual Cyclopædia" for 1885, page 102.)

A society has been founded for the purpose of freeing, by purchase or otherwise, the numerous slaves belonging to the estates of deceased Portuguese residents in Brazil. One Rio de Janeiro planter, Commandador Joaquim José Breves, has resolved to emancipate and

locate his 3,000 slaves. The number of slaves in the empire on June 30, 1885, was officially reported at 1,133,228; but it was estimated in September, 1886, that their number must have been reduced to fewer than a million, through death and liberation. At the same date the number of living children born free, by virtue of the law of 1871, was 439,881.

The Lash abolished.—As one result of the scandal caused by the judicial whipping to death of criminal slaves at Entreríos in Minas-Geraes, the Senate, on Oct. 1, 1886, passed the bill abolishing the lash as punishment for homicidal offenses by slaves. The penalties are now to be the same as in the case of free-men, except that transportation and fines may not be imposed on slaves, for obvious reasons.

Immigration.—Statistics up to July, 1886, show that during the first half of the year immigration was slowly but steadily on the increase. The number of foreigners in Brazil, according to the latest estimates published, was as follows:

Portuguese	800,000
Germans.....	180,000
Italians.....	50,000
Frenchmen.....	20,000
Englishmen.....	15,000
Poles.....	2,470
Spaniards.....	600
Other nationalities.....	5,000
Total	1,178,070

The Italian Government estimates the number of Italians in Brazil at 82,000, instead of the 50,000 credited to that nationality in the Brazilian tables.

In the province of São Paulo a society was formed in June, under auspices of leading planters and capitalists, for promoting the immigration of agriculturists. The society has made a contract with the provincial government, which engages to pay 85 milreis for every immigrant over twelve years of age; 42½ milreis for children between the ages of seven and twelve years, and 21 milreis for every child under seven years, landed from abroad in the province. The society engages to procure 6,000 *bona-fide* settlers under this contract. This premium on immigration is extremely liberal, and nearly covers the passage from Europe by steamer. There arrived at Rio in May 2,805 immigrants, 1,073 of whom were Italians, 936 Germans, 582 Portuguese, and 95 Spaniards, while there left 536 third-class passengers, leaving the net gain for the month 2,597.

The German Colonial Congress at Berlin closed its sessions on Sept. 16, 1886. Among other resolutions, there was one favoring emigration to southern Brazil, and the Congress appointed a permanent colonial committee to carry out, as far as possible, the ideas adopted concerning emigration. There arrived at Santos, on March 31, a hundred families of immigrants from the Portuguese island of Madeira, for the great coffee-plantations of Dr. Martinho Prado, Jr., Count de Tres Rios, and

Martinho Prado, Sr. On April 7, Dr. Martinho Prado, Jr., issued a circular from São Paulo, saying that the formation of a colonization company had been resolved upon.

Corvado Indians.—In May the Government sent an expedition of forty soldiers, under command of Lieut. Antonio José Dularce, to the uplands skirted by the river São Lourenço, where are numerous camps of Corvado Indians, seven semi-civilized Indians of the tribe accompanying the expedition, which has for its object the eventual civilization of the entire tribe.

Botanical Museum.—Prof. Francis Pfaff, of Geneva, Switzerland, has been appointed director of the Section of Chemistry at the Botanical Museum of Manáos. This section is to be devoted to the study of Amazonian flora, so far as applicable to industrial purposes.

Art Society.—There was in course of formation in September at Rio a society for the promotion of the fine arts, having for its object the facilitating of sales of the works of Brazilian and foreign artists. The shares subscribed are to constitute a fund, to be raffled by the shareholders among themselves, with the understanding that the winners employ the money in buying meritorious objects of art appearing at annual exhibitions.

Steamship Lines.—The Government has extended the privileges decreed by the law of May 4, 1882, to the Adria-Hungarian Sea Navigation Company, carrying on regular mail service between Fiume, Austria-Hungary, and Brazilian ports. In conformity with an arrangement made with a Copenhagen Steamship Company and the North-German Lloyd, direct steamship communication is to be established between Riga, Russia, touching at Antwerp, Brazilian ports, and Buenos Ayres.

The "Alliança," the latest-built vessel of the United States and Brazil Mail Steamship Company, sailed from New York on the first voyage to South America on Oct. 2. She was built by John Roach & Sons, and is a screw-propeller of 3,184 tons register, with a cargo capacity of 150,000 cubic feet and a coal capacity (in bunkers) of 400 tons. Her length over all is 326 feet, beam 42 feet, and depth of hold 24 feet 6 inches. Her first section of keel was laid Feb. 23; she was launched July 17, and delivered to her owners at New York, Sept. 27, 1886.

BRITISH COLUMBIA. The Canadian Pacific Railway Company abandoned its original intention of locating its Pacific terminus at Port Moody, the place being deficient in harbor accommodation, and a site was chosen at the entrance of Burrard Inlet. Here the company obtained from the Provincial Government a grant of land, and upon this land a city was laid out and named Vancouver. The infant city had made phenomenal progress when, on June 12, it was totally destroyed by fire. About five hundred houses were reduced to ashes in two hours. A fortnight later, two hundred houses were in course of erection, and the place

speedily resumed its rapid development. Next to the fire, the principal check to the progress of the city has been the action of certain land-owners between Port Moody and Vancouver, who obtained injunctions against the Canadian Pacific Railway Company, to prevent tracks being laid across their property. The legal proceedings were really instituted in the interests of the people that had invested money in Port Moody, on the faith of the promise that that place would be the terminus of the railway. The Canadian Pacific, which had been running freight-trains between Montreal and British Columbia since Nov. 2, 1885, opened a daily passenger service between Montreal and Port Moody on June 28, 1886. The Imperial Government (Lord Salisbury's), recognizing the importance of the Canadian Pacific Railway as an alternative route from England to India, and the other Eastern possessions of the British Empire, promised its influence to obtain from Parliament a grant to subsidize a line of mail-steamer from Vancouver to Japan, China, etc.

Cabinet Change.—The Hon. Simeon Duck was appointed Minister of Finance and Agriculture, an office formerly held by the Provincial Secretary. (For further details regarding the Cabinet, see "Annual Cyclopædia" for 1885.)

Mining.—The report of the Minister of Mines, for the year ending Dec. 31, 1885, shows a larger number of miners to have been employed in gold-mining in the province than in any year since 1866, and the average earnings to have been lower than at any time since 1858. Both results are partly accounted for by a rush to Granite creek toward the close of the mining season, and by a larger number of Chinamen working on the bars of Fraser river, which had been already worked and reworked. There were employed 2,902 miners, of whom 1,056 were whites. The banks exported gold to the value of \$594,782, and it is estimated that one third more, or \$118,956, was carried away in private hands, making a total of \$713,738, the average yearly earnings per man being, therefore, \$246. The profits of this industry have been steadily decreasing for years. Important discoveries of gold were made in the Similkameen district, a most promising field being opened at Granite creek, where a lead of heavy gold, having a steady run for four miles, was found.

The output of coal amounted to 365,000 tons, against 394,070 tons in 1884, and 213,000 tons in 1883. The decrease is attributed to the glutting of the San Francisco market with British and Australian coal.

Island Railway Lands.—A tedious dispute with the Dominion Government, with reference to the settlement of the lands transferred to the Dominion in trust by the province in 1883 to secure the construction of the railway from Esquimalt to Nanaimo, was brought to a satisfactory conclusion this year. The administration of these lands during the construction of

the railway was to belong to the Provincial Government, in order to facilitate their colonization. As the lands were partly settled already, and all patents then granted had been based upon the surveys of the Provincial Government, some of which surveys, made early in the history of the colony, were admittedly imperfect, much inconvenience and hardship might have been caused had it been arranged for the Dominion Government to assume the control of the lands, and issue patents upon a survey of its own. A number of applications from actual settlers within the Island Railway belt for patents for lands pre-empted by them were transmitted by the Provincial Government to the Dominion Government. For more than a year no patents were issued by the latter, which demanded, before granting any, the originals of all documents forming the basis of title to the land, including the original applications for such patents that were made to the Government of British Columbia, "as agents in this matter of the Government of Canada." Complaint was also made of insufficiency of description of the lands. The Provincial Government pointed out that, although acting as agents, they were the real principals in the matter, insisted upon their right to administer the lands, and protested against the Dominion Government retarding settlement. Ultimately the Dominion Government agreed to issue the patents, if the Government of British Columbia would, by order in Council, assume the responsibility for their issue upon applications certified by the latter. The order in Council was passed.

The Island Railway was finished, and the train service began, Oct. 1.

BULGARIA, a principality in Eastern Europe. By the Treaty of Berlin, signed July 13, 1878, the Turkish province of Bulgaria, north of the Balkan mountains, was created into an autonomous and tributary principality under the suzerainty of the Sultan, having a Christian government and a national militia, and ruled by a prince elected by the people and confirmed by the Sultan, with the consent of the treaty powers. In case of a vacancy, a new prince is to be chosen in the same manner. No member of any of the reigning houses of the great European powers is eligible.

Prince Alexander I, born April 5, 1857, son of Prince Alexander of Battenberg, of the grand-ducal house of Hesse, a branch of the Hohenzollerns, was elected hereditary prince by the Great Sobranje, or Constituent Assembly, on April 29, 1879. He is a first cousin of the Emperor of Russia, being nephew of the late Empress. Before his elevation to the Bulgarian throne, he was an active officer in the Prussian army. On Sept. 7, 1886, he abdicated the throne, after nominating a regency, and confiding to them the executive power during the interregnum.

The legislative power was vested by the Constitution of 1879 in a single chamber, called

the Sobranje, or National Assembly, the members of which are elected directly, by universal suffrage, in the proportion of one to every ten thousand of the population.

Area and Population.—The area of the principality is 24,360 miles. The population in 1881 was 2,007,919, comprising 1,027,813 males and 980,116 females. Sofia, the capital, had a population of 20,501; Rustchuk, 26,163; Varna, 24,555; Shumla, 23,093; Widdin, 13,714; Razgrad, Sistova, Plevna, and Tirnova, between 11,000 and 12,000. The Bulgarian language, mingled in the northwest with the Servian, which is a dialectical variation, was spoken by 67 per cent. of the population; 26·26 per cent. are Turks, 2·44 Wallachians, 1·87 gypsies, and the remainder Greeks, Jews, and Tartars. The Orthodox Greek faith is professed by 70 per cent. of the inhabitants, while 28·79 per cent. are Mohammedans. The population depends almost entirely on agricultural and pastoral pursuits.

The Army.—The military force consists of 8 regiments of infantry (each of 3 battalions), 9 squadrons of cavalry, 12 batteries of field artillery (with 96 guns on the war footing and 48 in peace), 2 companies of fortress artillery, and 5 companies of engineers. The peace strength of the army is 22,570, the war strength 62,370 men. Military service is obligatory on all who are capable of bearing arms.

Finances.—The revenue for 1885 was estimated at 34,899,900 lei, and the expenditure at 35,780,324 lei (1 lei = 1 franc, or 19·3 cents). The Assembly before adjourning on July 23, 1886, authorized a loan of 33,000,000 lei for completing the Zaribrod-Vakarel Railroad, and purchasing the Rustchuk-Varna line.

The Treaty of Berlin stipulated that the share in the debt of Turkey to be assumed by Bulgaria should be fixed by an agreement between the signatory powers, but the powers have not yet acted.

Commerce.—The export of wheat is 1,500,000 tons. The other exports are wool, tallow, butter, cheese, hides, flax, and prunes. The principal imports are cotton manufactures, iron, wine, timber, sugar, salt, and petroleum. A duty of 8 per cent. is levied on imports. Eastern Roumelia has been incorporated in the Bulgarian customs district, though without the sanction of the Porte.

Railroads.—There is in operation a line of railroad, running from Rustchuk to the port of Varna on the Black Sea, and having a length of 140 miles. A line from Vakarel to Zaribrod, passing through the capital, is expected to be completed in the summer of 1887, joining the Servian railroads to the system of eastern Turkey. A branch road, running from Vakarel to Belova and Sarambej, was expected to be finished before the close of 1886. Its construction was hastened for administrative and strategic reasons, since it will shorten the time required in the journey between Sofia and Philippopolis from twenty-four to twelve hours.

Eastern Roumelia.—The Bulgarian districts south of the Balkans were constituted by the Treaty of Berlin into an autonomous province of Turkey, having a Christian Governor-General, nominated by the Porte, and confirmed by the agreement of the powers, for the term of five years. The legislative authority was vested in a single chamber, called the Provincial Assembly, consisting of 36 members, elected by universal suffrage, 10 nominated by the governor, and 10 of the principal judicial and ecclesiastical functionaries holding their seats *ex officio*. The Sultan retained direct political and military authority over the province, and reserved the right of providing for the defense of the land by erecting fortifications and maintaining garrisons on the land and sea frontiers. This right he has not exercised. A native gendarmerie and local bodies of militia were organized for the purpose of preserving internal order. The officers were named by the Sultan, having regard to the religion prevailing in the various localities.

Area and Population.—The province has an extent of about 13,500 square miles. The population, which was returned in 1880 as 815,946 souls, is over 976,100, according to the census of Jan. 13, 1885. There are 682,756 Christian Bulgarians, 200,499 Mohammedans, 53,045 Greeks, 27,201 gypsies, 6,993 Jews, 1,867 Armenians, and 3,738 foreigners. The population of Philippopolis, the capital, is 33,442.

Finance.—The organic statute of 1879 provides that an annual sum must be paid into the Turkish treasury equal to three tenths of the public revenue. The amount was fixed by the European Commission that framed the organic statute at 240,000 Turkish pounds, or about \$1,000,000. Owing to the destruction of property and disturbance of industry during the war of 1877, and the subsequent emigration of a large part of the Moslem population to Turkey, and of many of the Bulgarians into Bulgaria, the revenue fell short of the estimated normal amount by 25 per cent. The payment of the Turkish tribute ceased in a few years. In 1882 the Provincial Assembly passed a law fixing the annual amount of the tribute at 180,000 Turkish liras.

The budget estimates of the revenue for 1885-'86 was 672,550 Turkish pounds, that of the expenditure 676,650 pounds. Two thirds of the revenue is derived from direct taxes.

Commerce and Industry.—The people are chiefly engaged in agriculture, which is in a backward condition. Besides cereals, there is a considerable production of wine. Woolen cloth and braid are exported to Turkey, and timber in large quantities to Asia Minor. The total value of the imports in 1883 was \$2,400,000; of the exports, \$2,820,000, of which sum \$1,320,000 represents the cereal exports. The trade with Bulgaria constituted 27 per cent. of the total foreign trade.

Union with Bulgaria.—By the revolution of Sept. 17, 1885, the government was over-

thrown, the Governor-General expelled, and the union with Bulgaria proclaimed. Prince Alexander of Bulgaria was invited by the revolutionary leaders to place himself at the head of the movement, and take over the government of the province. With the approval of his ministers he accepted the responsibility, and appointed his representatives to administer the government. Servia, on the ground that the aggrandizement of Bulgaria disturbed the equilibrium of the Balkan states, mobilized her army with the intention of seizing upon an equivalent addition of territory in Macedonia, or of forcing Bulgaria to restore the *status quo ante*. The rapid mobilization of the Turkish army frustrated the Servian and Greek schemes of annexation. The Servian troops then invaded Bulgaria at various points. The main force was defeated at Slivnitz, but the Bulgarians were restrained from marching into Servia by the threats of Austria. An armistice till March 1, 1886, was arranged at the close of 1885, the position of the troops and the results of the campaign being referred to an international commission of military experts. Russia exerted her influence to induce the Turkish Government to intervene in Eastern Roumelia.

In agreeing to the division of Bulgaria into two parts by the Treaty of Berlin, the Russians had counted on dominating and eventually absorbing the principality. The educated Bulgarians, who in the American College in Constantinople were trained in the theory and spirit of constitutional liberty, and the German prince, who at first showed small respect for the principles of Slavic democracy and western liberalism, at length found a common motive and bond of sympathy in resisting the Russian diplomatic and military agents, who treated Bulgaria as a Russian province, and the prince as a satrap of the Czar. In his attitude of independence Alexander was encouraged by English diplomacy. In Constantinople, the British representative, Sir William White, and the Russian ambassador, pursued an active rivalry in endeavoring to persuade the Porte to adopt their opposite counsels. In sending a Turkish commissary into Eastern Roumelia the Sultan yielded to Russian advice, but after the success of Bulgarian arms, and the confirmation of the spirit of independence in Eastern Roumelia, English counsels prevailed. Sir Frank Lascelles, the British consul-general at Sofia, who was knighted for his diplomatic success, encouraged Prince Alexander to embrace the national cause. The Czar ordered home the Russian officers, leaving the Bulgarians with only captains and lieutenants to lead them against the Servian invaders. Alexander was treated as a rebellious vassal and ignominiously dismissed from the Russian army. After the Bulgarian victory, the Czar directed his animosity against the person of the prince only. Though long resisting the decision of the powers, Russia was at last constrained to agree to the personal union of Bulgaria and Eastern

Roumelia, and signed the protocol of April 5, 1886. Russian agents then renewed their efforts to upset the Battenberg prince in Bulgaria, and his cousin, the Czar, repelled every proposal for a reconciliation.

The Turkish Agreement.—Gadban Effendi, the Turkish commissioner to Bulgaria, convinced himself that the personal union of the two Bulgarias was inevitable, and returned to Constantinople bearing proposals from Prince Alexander. The prince asked to be appointed Governor of Eastern Roumelia for the statutory term of five years, and proposed that the Bulgarian Sobranje and the Roumelian Assembly should continue to legislate independently for the state and the province, but should appoint delegations to consider common affairs; that Bulgarian officers might serve in the Roumelian army, and Roumeliote officers, with the consent of the Porte, in the Bulgarian army, while appointments of generals to commands in Eastern Roumelia should be subject to the approval of the Porte; and that the question of the tribute should be determined by a financial commission. Gadban Effendi returned to Prince Alexander on Jan. 11, with the assurance that the Porte would sanction the union, provided it could be accomplished without impairing the sovereign rights of the Sultan. An agreement was concluded between the Porte and Prince Alexander by the end of January. It included a defensive alliance between Turkey and Bulgaria, and provided that the Governor-General of Eastern Roumelia should receive his appointment for the first period of five years, subject to the approval of the signatory powers, but that for future terms the nomination of the Porte should be sufficient.

Conference of the Powers.—A diplomatic conference was held at Constantinople for the purpose of taking action upon the separate agreement arrived at between the Porte and Prince Alexander. This Turco-Bulgarian agreement was approved without reserve by Great Britain, France, and Italy on Feb. 4; but Austria and Germany withheld their answer in order to consult with Russia and with each other. The Russian Cabinet objected strongly to the provision promising the assistance of the Bulgarian army in case the dominions of the Sultan should be attacked by a foreign power. Upon Russia's persisting to oppose the union, a definite counter-proposition was demanded of her, while Great Britain expressed a desire to come to an agreement with the St. Petersburg Cabinet and accept modifications not incompatible with the main principle of a personal union. Russia would have accepted the Bulgarian arrangement with Turkey if it had provided for a union of Bulgaria and Eastern Roumelia under the Prince of Bulgaria, without designating Prince Alexander. The Russian Government at first objected to the limitation of the term of the governor-generalship of Eastern Roumelia to five years. Afterward, when England, Austria, and Italy had

repeated their recommendation to make the Prince of Bulgaria Stadholder of Eastern Roumelia without limit of time, and when Germany had expressed approval of the principle, the representative of the Czar changed about, at the time of the conclusion of peace with Servia, and proposed that the governor-generalship should be for five years, and that a renomination should proceed from the Porte, and receive the approval of all the powers. This proposal was accepted at once by all the powers, though France raised an objection to the immediate approval of the Turkish agreement on the ground that the inclusion of Eastern Roumelia in the Bulgarian customs district would be prejudicial to French commercial interests. The Turco-Bulgarian negotiations had reached their final stage and the treaty was ready for the signature on March 8, when Prince Alexander created a difficulty by refusing in advance to accept the governorship of Eastern Roumelia if it were offered to him only for the term of five years. A few days later he recalled Zanow, his plenipotentiary, from Constantinople, and expressed his willingness to accede to the limitation of five years, provided the renomination for a further term of five years should come from the Porte, but not if it were made dependent on an agreement of the Great Powers, thus enabling Russia or any other of the powers at the end of every five years to defeat or place new conditions on the continued union of the two Bulgarias. In a note to the Porte, dated March 30, he renewed his protest, and Italy was disposed to support his view. Yet, in order to bring the Balkan complications at length to a peaceful issue, the western powers accepted the Russian proposals, and signed a protocol of the modified agreement on April 5. The Bulgarian prince accepted the conclusions of the conference, with a reservation as to the point to which he had objected.

The Armistice.—During an exchange of views between the powers the Russian Government issued a circular note in favor of insisting on the immediate and complete disarmament of Bulgaria and Servia. The powers accepted this suggestion, and concluded to include Greece in the proposal. They accordingly made a joint proposal that the three Governments should agree on a simultaneous partial demobilization in a collective note, presented Jan. 12. The Bulgarian and Roumelian reserves had already been sent home on furlough till the 1st of March; but the Servian Government had just issued a decree recalling the reserves, and was providing itself with new batteries of Bunge cannon, and seeking to raise another war loan. The officers and official press spread the opinion in the country that Servia had not been beaten in the war, notwithstanding the decision as military experts of the international commissioners for the armistice. The Belgrade Government still insisted on the restoration of the *status quo ante* in Roumelia, and

declared that it would not conclude peace until the Roumelian question had been settled satisfactorily to Servia. In the beginning of January commissioners were appointed to conduct the peace negotiations. The Bulgarian Government appointed M. Geshoff, and the appointment was ratified by the Porte. M. Mijatovic, the Servian minister in London, was named by his Government. Vienna was proposed as the place for holding the sittings of the peace conference, but, when Prince Alexander objected, King Milan, on Jan. 11, suggested Bucharest, and the proposal was satisfactory to the Bulgarian prince.

Treaty of Peace with Servia.—Bulgarian and Servian representatives met in Bucharest, to conclude terms of peace. On Feb. 2 they agreed upon the order in which the points at issue should be taken up, and the day following began negotiations. An identical communication of the representatives of the powers in Constantinople recommended that in the peace negotiations all thoughts of a war indemnity for Bulgaria should be given up, that the Berlin Treaty should be respected, that the Eastern Roumelian question should be excluded from the negotiations as a purely internal matter, and that the diplomatic representatives of the powers in Bucharest should be kept informed of the progress of the treaty. Servia hesitated to agree to terms of peace up to the last minute, and continued her armaments and her warlike attitude. The Turkish threat that the recommencement of hostilities against Bulgaria would be regarded by the Porte as a declaration of war finally brought her to terms.

The peace negotiations were prolonged until the very day when the armistice expired, March 1. The Turkish minister to Belgrade then proposed a treaty to consist of a single article: "Peace is re-established between Servia and Bulgaria from the day of the signing of the present treaty. Ratifications will be exchanged at Bucharest within fourteen days, and if possible sooner." The Servian minister, Garashanin, agreed to this proposal, and the powers were notified.

Geshoff, the Bulgarian, and Madjid Pasha, the Turkish plenipotentiary, received instructions to sign the treaty, which was duly executed on March 3. Servia still refused to enter into a treaty of friendship with Bulgaria, or to resume diplomatic intercourse.

Session of the National Assembly.—The Sobranje was opened on June 14. In the speech from the throne the prince expressed his delight that the union of North and South Bulgaria was an accomplished fact. He had taken a decisive step to render the union more complete than a mere personal union, in calling together a common National Assembly. Urged by Russia, the Porte called Alexander to account. He explained that, since he had to submit the decisions of the conference of ambassadors at Constantinople to the representatives of both Bulgarias, he had summoned them

to meet together as a matter of expediency. While the Turco-Bulgarian commission to revise the Eastern Roumelian statute had never yet begun its labors, Prince Alexander was indefatigable in assimilating the internal organizations of the two states. A branch of the Bulgarian National Bank was established in Philippopolis. The judicial system in Roumelia was reformed; there were twenty-seven courts constituted in the single districts, six courts in the chief towns of the departments, and a court of appeals in Philippopolis. The Bulgarian code of law was established in Eastern Roumelia. The Bulgarian Government did everything to stand on a good footing with the Porte. The National Assembly in Sofia voted a credit to pay the arrears in the land-rents of Eastern Roumelia. All other financial questions were to be arranged with delegates from Constantinople. The negotiations for the revision of the organic statute of Eastern Roumelia were begun, and for some time carried on with perfect concord between the Turkish and Bulgarian Governments. Delegates were appointed on both sides to delimitate the districts in the Rhodope mountains, inhabited preponderantly by Mohammedans, which, according to a decision of the conference of ambassadors, should revert to Turkey. The Turkish Government afterward, yielding to Russian influences, raised objections to the political and administrative unification of the two Bulgarias, and broke off negotiations.

Dethronement of Alexander.—In the night of Aug. 20 a detachment of soldiers and a band of officers took possession of the palace of the prince and seized his person and that of the prime minister. The following day the leaders of the pro-Russian party, who had organized the conspiracy, announced his abdication, and formed a provisional government.

The chief conspirators were the ex-Minister Zankoff and Major Grueff, the commandant of the military academy, with whom were associated the Metropolitan, Clement, and Col. Stojanoff. Officers were induced to join in the plot by promises that they would receive commissions in the Russian army corresponding with their Bulgarian rank. Money was furnished from Russia in abundance to carry out the state-stroke. By a trick the troops were removed from Sofia before the attempt. The Minister of War was beguiled by fictitious reports announcing extraordinary military preparations, which were telegraphed from Servia with such frequency that the Porte demanded explanations from King Milan's Government. Minister Nikisoroff, convinced that the intelligence was genuine, proposed to the Prince to forward troops to the frontier. The two regiments garrisoned at Sofia were accordingly sent to Slivnitsa. An artillery regiment stationed at Dubnitza, near the capital, had, by the aid of plentiful bribes, been won over by the conspirators. Instead of marching to the Servian frontier, as it had been ordered to do,

this regiment during the night silently occupied the streets of Sofia, and surrounded the princely palace. A battalion of the Alexander regiment was still encamped in Sofia, but it was surprised and disarmed. The chief of the military academy, the artillery colonel, Zankoff, and the Metropolitan, with a number of military cadets and officers, gained access to the palace between two and three o'clock in the morning by climbing over a wall. The cadets overpowered the guards and bound them to trees. An adjutant, while hastening for help, was made a prisoner. The leaders burst into the prince's apartments before he was dressed, and with drawn revolvers compelled him to accompany them to the ministry of war. There Zankoff said to him that his continuance on the throne was the ruin of Bulgaria, and that all parties desired his abdication. "Are all parties united in that?" he asked. Zankoff replied "Yes." "And the army also?" Col. Stojanoff nodded his head. Grueff hastily wrote a few lines and presented the paper to Alexander to sign. Officers aimed their pistols at the prince with the intention of killing him if he refused to abdicate. "I can not read what you have written," he said, and then wrote underneath "God protect Bulgaria! Alexander." The prince was carried in a coach, guarded by a strong escort, to a cloister. While the leaders passed on to the house of Karaveloff, a salvo of artillery aroused the populace. Karaveloff was informed of what had occurred, and asked to join the movement. On refusing, he was placed in confinement. Money was distributed among the people, and many were found who for ten rubles were willing to shout "*Zivio Czar!*" and swell the demonstration of Russian sympathizers at the Russian consulate.

A proclamation was read to the people, who assembled upon the discharge of artillery, announcing the abdication of the prince and the formation of a provisional government, consisting of Karaveloff, Zankoff, Clement, and Nikisoroff. Karaveloff refused firmly to join the revolutionists, and was kept under guard. Nikisoroff also refused to figure in the list. It was not till the evening of the 21st that, after repeated attempts, a provisional government was formed, under the presidency of Clement. In order to persuade the people that the revolution had been accomplished by the co-operation of all political parties, telegrams were sent to every part of the country, calling upon Bulgarian patriots to sustain the provisional government, which were signed with the names of public men who had no part in the conspiracy, and most of whom were opposed to it. The list of members of the provisional government, containing the names of Karaveloff and Nikisoroff, was published throughout the land, and not recalled, even after the government was constituted without them, and after they themselves were placed in duress for refusing to join in the movement. The revolution was easily accomplished throughout the country

by the official announcement that the prince had voluntarily abdicated. In Philippopolis the former officials and Russophile adherents of Gavril Pasha set up a revolutionary government without opposition.

Alexander remained during Saturday, the 21st, in the cloister. There was a design to murder him, but the Russian consul-general upon hearing of it told the leaders of the conspiracy that they would be required to answer with their heads for the prince's safety. On Sunday he was placed on his yacht, and taken down the Danube to Reni-Russi in Bessarabia. He arrived there in the afternoon of the 24th, but was not allowed to land until the next day, when permission came from St. Petersburg for him to pass through Russian territory by any route that he chose. On the morning of the 26th he left with his brother in a special train for Lemberg.

The Counter-Revolution.—The first step undertaken by the revolutionary ministry, after securing the adherence of some of the local officials, and removing others who were friendly to the prince, was to administer the oath to the army; but in that quarter they encountered an unexpected resistance. The soldiers and officers received with sorrow and dismay the official announcement from Sofia that Prince Alexander, in the consciousness that his continuance on the throne would work incalculable injury to the country, had solemnly abdicated, and that a provisional government had been formed under Karaveloff and Zankoff. The higher officers in different parts of the country consulted with each other, and tested the sentiments of the rank and file. A common feeling of fidelity and devotion to the prince who had fought with them at Slivnitz was found to exist among all, excepting the two regiments that took part in the rebellion. The loyal officers placed themselves in communication with Stambuloff, the President of the Sobranje, Radoslavoff, and other politicians of nationalistic views. After learning some of the circumstances of the prince's deposition, the garrisons of Widdin, Tirnova, Shumla, Plevna, Slivnitz, and nearly all the Eastern Roumelian posts revolted, declared their loyalty to the prince, and threatened to march upon the capital and restore him to the throne. Clement issued a bulletin declaring that all the regiments had taken the oath, but failed to convince the people. The officers of Alexander again appeared in uniform, and his adherents manifested a joyful expectation of a turn in events. On the 23d the Alexander regiment, that had been stationed at Slivnitz, entered Sofia. The prime minister was released from captivity. The members of the provisional government resigned their powers into the hands of Karaveloff, who formed a new provisional government, with Stambuloff and Nikisoroff for his colleagues.

The troops in Philippopolis regretfully took the oath of fidelity to the provisional govern-

ment, with the exception of one *drushina*, or battalion, of the regiment of Philippopolis, which, on some pretext, postponed the ceremony. The commander of the *drushina*, Capt. Veltsheff, was a devoted admirer of the Tattenberg prince. When the list of ministers appeared without Karaveloff's name, that officer spoke with Col. Mutkuroff, the commander of the troops in Eastern Roumelia, and was requested by him to secretly ascertain the sentiments of the officers. Veltsheff soon convinced himself that all the officers of his regiment were faithful to their sovereign, and that the soldiers were ready to rise on behalf of the soldier-prince. Some civilians were taken into the secret, and instructed to gather quietly at the palace in the evening. Veltsheff marched his battalion there under the pretext of taking the oath, seized the palace and the telegraph-office, and then entered the city and announced the revolt at the foreign consulates amid the hurrahs of the people. Through the telegraph it was learned that the Varna regiment had risen about the same time. Capt. Nikisoroff, commander of the Rhodope regiment, was informed of what had occurred, and answered over the wire that he would consult with his subordinates. After a long pause, the message came that the Rhodope regiment had risen. Capt. Petreff, who commanded the Balkan regiment, who was a stranger to the Philippopolis officers, was cautiously sounded, but showed by his answer that he was in sympathy with the movement, and, when informed of the state of affairs, sent back word that he and his command were prepared to fight for the prince. Finally, a dispatch was sent to Stambuloff at Tirnova, and, when he returned an encouraging answer, the success of the counter-revolution was assured.

While Karaveloff and Nikisoroff, who was his close political ally, remained in Sofia, and made ineffectual attempts to exercise the authority of the Government, Stambuloff traveled through the country, visiting the military camps and organizing the counter-revolution. The officers were unwilling to trust the Karaveloff Government. Its chief was strongly suspected of complicity in the conspiracy to depose Prince Alexander, although he had refused to join the leaders of the revolution, and had denounced them in vigorous terms. Stambuloff, who possessed the full confidence of the officers, shared their distrust of Karaveloff, and refused to act with his colleagues in the provisional government. The officers requested Stambuloff to assume the direction of affairs, and he and Radislavoff, with the co-operation of Col. Mutkuroff in Eastern Roumelia, formed a rival provisional government in the interest of Prince Alexander, which was recognized by the army and the population in the west, in the Danubian towns, and in Roumelia. He sent appeals to the prince to return to his throne, assuring him of the fidelity of the regiments and of the population in Rustchuk, Tirnova, Sistova, and

throughout Eastern Roumelia. Col. Nikolaieff, chief commander in the late war, returned from Germany, and assumed command of the troops. Stambuloff telegraphed to Natchevich, the Bulgarian diplomatic agent in Bucharest and Minister for Foreign Affairs, instructing him to inform the representatives of the powers of his assumption, at the request of the army and the people, of the extraordinary powers granted him as President of the Sobranje by the Constitution, until the return of the lawful sovereign.

The Prince's Restoration.—As soon as Alexander reached Polish ground, he was greeted with enthusiastic popular demonstrations. When he arrived in Lemberg, he learned that he had been driven out of the principality by a band of conspirators, and that only a small party in Bulgaria were hostile to him. In Bulgaria counter-revolution was in progress, and his party assured him of a favorable reception. From England he was encouraged to return. He perceived that the popular feeling in Germany, in Hungary, and throughout Western Europe, was in his favor. Without being able to calculate how far the Governments of Germany and Austria-Hungary might be influenced by popular impulses, or whether the sympathies of England were purely platonic, or to what extent the Czar would countenance the palace revolution and insult Bulgarian patriotism, he determined to return to Bulgaria. In Sofia the Alexander regiment stood guard in the streets, but the rebellious Kustendil regiment refused to leave the city for the station to which it had been ordered. Fatal duels took place between the officers of the rival regiments, and there was danger of a sanguinary collision at any moment.

Alexander started to return to Bulgaria on August 28, and traveled through Roumania, where the Government and people manifested a cordial and sympathetic interest. Entering his principality, he was met by Stambuloff and other devoted friends. He nominated a new ministry, and, in company with its members, made a tour through the country, where he was everywhere received with enthusiasm. In Sofia the members of the first provisional government were imprisoned, and those of the second were placed under guard. The Shumla regiment left Sofia, and united with the other mutinous regiment a few miles from the city. They were surrounded by Roumeliot troops and the Alexander regiment, and at length surrendered at discretion.

Abdication of Alexander.—As soon as Alexander again found himself on Bulgarian soil, at the head of his troops, surrounded by a constitutionally appointed ministry, and in the full exercise of his sovereign powers, he made a last attempt to conciliate the Czar, sending from Rustchuk, on Aug. 30, a submissive and humble message, in which he stated that his object in returning to Bulgaria was to avert civil conflicts and bloodshed, restore constitu-

tional order, and assert the monarchic principle, and closed by saying that he owed his crown to Russia, and was willing to place it in the hands of Russia's Czar. The Emperor returned a gruff answer, in which he did not even deny that the Russian Government was a party to the revolution, in answer to the prince's expression of confidence that such was not the case, but simply said that he disapproved of the restoration of Alexander.

Soon after his arrival in Sofia, Alexander received from the German and Austrian consuls an identical note, wherein both powers entered a protest in advance against the execution of any of the mutineers and conspirators. He perceived at once that he could not expect from the German powers any moral support in opposition to the will of Russia, and felt that Russian plots would render his stay impossible, and plunge the country into disorder and anarchy unless the laws could be enforced against traitors, and the discipline of the army maintained. Bribes, threats, and promises could again be employed to effect his removal by a stronger faction than took part in the revolution of Aug. 21, without the need of direct Russian intervention. He therefore decided that the best chance for the maintenance of Bulgarian independence lay in his abdication, and that the immediate resignation of the throne might save the country from strife and confusion that would result in Russian occupation, and himself from a second expulsion.

After a popular ovation and a review of the troops, on the 3d of September, Alexander addressed the officers and the members of the diplomatic corps in his palace, saying that for seven years he had labored for the independence and the interests of Bulgaria, and that his chief care had been the army and the officers, whom he had regarded as his children. He could now leave Bulgaria without causing disorder, and would always pray for the country; his heart would be with his officers, and he would be the first who as a volunteer would desire to go into the field with them. He could no longer remain in Bulgaria, because the Czar of Russia would not have it, and because his presence in Bulgaria conflicted with the interests of the country. When Popoff assured him that the army would stand by him, he answered that the independence of Bulgaria required that he should leave the country; that if he remained, it would lead to a Russian occupation. But before he went, he said, he would consult the higher officers, and appoint a regency which would protect the interests of the officers. In any case, he said, he could depend on the army.

On Sept. 7, before his departure, the prince addressed a circular to the diplomatic agents in Sofia, in which he renounced the throne, on the ground that foreign political relations had made the step necessary. In the night following, his manifesto was affixed in the provincial towns and villages. He nominated as regents

Karaveloff, Stambuloff, and Mutkuoff, and submitted their names to an assembly of leading civilians and the higher officers.

The composition of the regency was a subject of contention between the politicians and the military. The officers considered that they should have had at least two representatives, while some of the deputies held that the regency as constituted was illegal, because the Constitution prescribed that only such as had filled the posts of ministers or judges of the Supreme Court could be called to the office—a condition that was not fulfilled in the case of either Stambuloff or Mutkuoff. The officers objected to Karaveloff, who was suspected of having been concerned in the prince's deposition. At eleven o'clock the notables proceeded to the palace and reported that they were convinced of the truth of Karaveloff, and were satisfied with the nominations to the regency. Five minutes later a printed proclamation was circulated announcing the departure of Prince Alexander in the afternoon.

The soldiers were drawn up in the streets of the city, and the inhabitants of Sofia lined the road for ten miles outside. As the prince's convoy passed along, the army and populace demonstrated their grief in an unmistakable manner. In bidding farewell to the officers who rode in the convoy, neither Alexander nor they could suppress their emotion. At Lom Palanka, Widdin, and smaller places, the people showed by enthusiastic demonstrations their attachment for the hero of Slivnitsa.

Attitude of the Powers.—The understanding between Germany and Austria, as appeared from Premier Tisza's answer to the interpellations in the Hungarian Parliament, was that Prince Alexander was to be set aside and Russia allowed to regain, as far as she could by moral pressure, the influence in Bulgarian affairs that she possessed before the estrangement of the prince and people by the arrogant interference of the Czar's agents. Alexander was in bad odor on account of his disregard of the Berlin Treaty and of the treaty powers.

The course of England was resented as an attempt to gain political and commercial prestige by intrigues that threatened to plunge Europe in war, without herself incurring risk or responsibility. Alexander had made himself objectionable to Austria and Germany as well as to Russia, because he had proved amenable to such influences. It was only after the Austro-German position had been defined by the Hungarian minister that Lord Randolph Churchill, and afterward Lord Salisbury, intimated, in public speeches, that Great Britain would aid in repelling a Russian movement.

In his avowal that he had received his crown from Russia and his offer to surrender it to the Czar, Alexander showed as little respect for the sanction of Europe as in placing himself at the head of the Roumelian revolution. If the Czar had taken him at his word, and sent a commissioner to administer the Gov-

ernment of Bulgaria, Austria would have resisted, with the support of Germany. Russia was given to understand that the allied empires would not countenance nor permit a military occupation of Bulgaria, nor the establishment of a protectorate.

The Regency.—The prince appointed as regents three men whom he considered his principal adherents, thoroughly identified with the policy he had pursued in recent years. The ministers also were mostly men of conservative and nationalist views. The portfolio of finance was given to Geshoff, while Dr. Stoiloff was made Minister of Justice, and Natchevich of War. The presidency of the Council was conferred upon Radoslavoff, who was more friendly to Russia, but still an advocate of Bulgarian independence, as was also his radical colleague, Theodor Ivanchoff.

In reply to inquiries from the provisional government, the St. Petersburg Cabinet declared that it would sustain the regency so long as the interests of the whole country were observed, and peace and order maintained; that Russia was opposed to the election of a new prince until the complete return of tranquillity; that Russia was prepared to promote the union of the two Bulgarias, but not in the present violent form; and that the establishment of good relations between Russia and Bulgaria depended upon the provisional government, and upon its repairing its past mistakes. The regency appealed to some of the powers for recognition in order to constrain Russia to follow the other treaty powers in such an act, but received the answer from Italy that, as the legal depositary of the executive power, it needed no special recognition.

The Russian Government expressed the intention of sending a commissary to Bulgaria, but refrained from so momentous a step, and dispatched instead, as its diplomatic agent, Gen. Kaulbars, a brother of the former Russian Minister of War in Bulgaria.

The Sobranje met on September 13, and adopted an address to the Czar, expressing the deep attachment of Bulgaria. In the answer to the address of the regents, the deputies declared that the crime of August 21 should be treated as an act of treason against the independence of the nation and against the crown of the beloved Prince Alexander, and expressed gratitude to the prince for his magnanimous abdication in order to restore cordial relations with Russia. In the election of a president the adherents of the Zankoff party numbered only 13 of the 200 members present.

A bill was passed, with practical unanimity, to purchase the property of Prince Alexander in Bulgaria for 2,500,000 francs, which would discharge the debts he had incurred to keep up his state, and yield him considerable sum besides; but the surplus was eventually declined. The Sobranje separated on Sept. 18.

On the 19th of September the Russian consul

delivered a note to the Bulgarian Government demanding a postponement of the trials of officers and others who had been arrested for complicity in the state-stroke of August 21, until a calmer state of public feeling existed.

The Mission of Kaulbars.—Gen. Kaulbars arrived in Sofia on the 25th of September. The Government appointed the 10th of October for the election of the Great Sobranje summoned to choose a new prince. The regents and leading politicians were at first in favor of re-electing Prince Battenberg, in accordance with the general desire of the people, but gave up the idea out of regard for the sentiments of the Czar, and because it was certain the choice would not be acceptable to all of the powers.

Baron Kaulbars placed himself in antagonism with the Government from the time of his arrival. He demanded that the processes begun against the officers who had participated in the abduction of the prince should be discontinued, and the prisoners set free; that the state of siege should be revoked; and that the elections to the Great Sobranje should be indefinitely postponed. He issued a circular to the Russian consuls, in which he accused the Government of suppressing a telegram from the Czar, condemned the burning of the flag of the mutinous Strunsky regiment, and contested the right of the courts to proceed in the trial of the officers, because the members of the Government belonged to a hostile party.

He said, in this circular, that the Czar expected all Bulgarians to turn to him with perfect confidence as their only deliverer; that the time for empty words and declarations had gone by, and he looked for acts by which Bulgaria should prove, in an unquestionable manner, her devotion, and then only would he deign to further her progress internally and externally.

The ministers informed Gen. Kaulbars on October 1 that the Russian demands with regard to the state of siege and the persons arrested on account of the *coup d'état* were accepted, but that they could not agree to a postponement of the election, which was fixed for October 11. The order restoring the ordinary law had already been issued the day before. Kaulbars declined to accept the dispatch because it was not clear enough, whereupon the ministry sent another note, declaring that the Bulgarian Government desired to follow the counsels of Russia, but only so far as the laws of the land permitted. The Bulgarian Constitution requires an election of a Great Sobranje within a month after the throne becomes vacant; but the Russian agent argued that regard should be had to the extraordinary conditions, and that the election of a prince would be useless until the powers had agreed on a candidate. The arrested officers were set free on October 4, with the exception of seven of the principal conspirators.

The Russian consul in Philippopolis was ordered by Gen. Kaulbars to distribute litho-

graphed copies of his note announcing the demands of Russia among the people; but the prefect of the city, Dimitroff, forbade their circulation, and took measures to prevent it. In a public meeting in Sofia a Russian agent shouted, "Long live the Czar! Perish Bulgaria!" and was roughly handled by the citizens. Gen. Kaulbars then appeared, and attacked the Government in a violent speech, but his words were drowned. Leaving Sofia under instructions from the Czar to investigate the state of feeling throughout Bulgaria and Eastern Roumelia, he traveled through the country, endeavoring by addresses and circulars, and by secret incitement and bribery, to foster among the people resistance to the decrees of the Government, and foment mutiny in the army. He sent a letter to the commandant of the garrison at Rustchuk, urging the release of the officers held in custody there; but that officer replied that his demands should be addressed to the Government. In every garrison town he summoned the officers to a consultation on his arrival; but they declined such interviews, as being inconsistent with their duty. Three regimental commanders in Shumla sent a protest to Stambuloff, advising the acceptance of the Russian demands; but, on receiving a sharp reprimand, promised to abstain from political discussions. The Government used stern measures to insure obedience, and to repress the agitation that Russian agents sought to provoke.

The rigorous application of military law offended the people, but not so much as the unusually strict collection of the taxes that the ministry ordered, in order to relieve the embarrassments of the treasury. The Zankoff party spread the belief among the farming class that under Russian rule taxes would not be so rigorously collected, and that money would flow into the country and be much more plentiful.

The Russian general was greatly disappointed in the strength of the Russian party. A small knot of adherents of Zankoff met him in each town, but nowhere did he receive the semblance of a popular welcome, except from some small deputations of peasants, and from Macedonian and Russian supporters. Montenegrins and Macedonian adventurers flocked to the Russian consulates in the Orient, during turbulent times, when money can be earned by creating disturbances or organizing insurrectionary outbreaks. The Montenegrins are engaged by the consuls as *cavasses*, and inspire fear and respect among the people by their martial air and the many weapons that they carry, in accordance with their national custom. The demonstrations of peasants in Rustchuk and other places, that Kaulbars represented as showing the true state of feeling in Bulgaria, were arranged and conducted by hired agents, none of whom were Bulgarian.

The proceedings of Gen. Kaulbars were viewed with wonderment throughout Europe.

Lord Iddesleigh, the British Foreign Minister, sent a circular note to the powers, asking them to extend their moral support to the Bulgarian Government. The ministry addressed a circular to the representatives of the powers, remonstrating against foreign interference with the elections. Consul Nekliudoff, in Sofia, refused to accept the note in the absence of his chief, protesting against its import, and declared a rupture of diplomatic intercourse.

The Elections.—The Opposition party was given no opportunity to arrange an election campaign. In the provinces the state of siege though nominally ended, was still practically maintained. The Government party distributed everywhere a manifesto, appealing to the electors to vote for men who were Bulgarians first, and Slavs afterward; who would choose a prince willing to die for Bulgaria on the battle-field, and was her hero-prince; and thus show that Bulgaria will live free and independent, and not bend anew to the yoke.

The elections passed off quietly, except for attempts of Russian emissaries in various places to create riots. In Sofia, Nekliudoff arranged, or at least countenanced, a plot to prevent the election. Forty or fifty peasants were hired in the neighboring villages. They made their rendezvous at the Russian consulate, where they were joined by a band of Montenegrin bravoes, who had been brought direct from Montenegro. Nekliudoff made them a speech, in which he said that the elections were disapproved by the Czar, and would be null and void. They were then marched by their Macedonian and Montenegrin leaders to the polling-place. There they stoned the people, and attempted to burst in the door, and destroy the urns; but in the fight that followed, they were put to flight by the citizens, and took refuge in the yard of the Russian consulate. A mob gathered about the gate and jeered at the peasants. This led to the throwing of sticks and stones, and, although the police drove the people back, the peasants soon began again to hurl fire-wood, and were answered with a volley of bricks. The Montenegrins, who were claimed by the Russian agent as regular *cavasses* of the consulate, then fired off their revolvers, and the bullets went into the German and English consulates opposite. Soldiers then cleared the streets, and conducted the peasants, whom the Russian consul now ordered away, outside the town. In Widdin, a group of about fifty peasants, who assembled before the Russian consulate, to protest against the elections, were dispersed by the police. In answer to the complaint of the Russian consul, the prefect stated that they were not Bulgarians, and had no right to assemble on election-day. In Eski Sagra, a soldier of the garrison named Bahov Ivanoff, was arrested, who confessed that Schachotin, the Russian consul in Rustchuk, had employed a certain Montenegrin *voivode* to organize bands that were to set out on Oct. 17 and raise disturb-

ances in different parts of the country, with the object of hastening a Russian occupation. In Dubnitsa, on the Macedonian frontier, a riot occurred, during which the sub-prefect and both of the Government candidates were murdered. In Vratza, Zankoff partisans prevented the election from taking place by force; and in Bela Slatina, by spreading a false report that the Government had postponed the elections. Before the elections, it was generally believed that proofs of Karaveloff's complicity in the plot to kidnap the prince existed in the hands of the authorities, yet he still remained a member of the regency, though holding but little intercourse with his colleagues. He was excluded from the list of Government candidates for Sofia, and on an independent ticket received scarcely any votes.

Treaty of Friendship with Servia.—During the crisis, the Servians as well as the Roumanians manifested a strong interest in the independence of Bulgaria, and a desire was shown in Servia to resume friendly relations with Bulgaria. The regents nominated Dr. Strausky as diplomatic agent in Belgrade. The Servian Government made no objection to his person, notwithstanding the part he had played in the Roumelian revolution, but said that it would welcome him as a commissioner to arrange certain difficulties, before all, the Bregovo question, preliminary to re-establishing regular diplomatic intercourse.

On Oct. 25, Dr. Strausky arrived at Belgrade as the Bulgarian diplomatic agent, and the same day an agreement respecting the resumption of diplomatic relations was signed. Since the war, there had been no commercial or postal intercourse between Servia and Bulgaria. The agreement contained the following stipulations: (1) The Bregovo question to be referred to a joint Servo-Bulgarian delimitation commission; (2) a treaty of commerce to be concluded within six months; (3) Servian refugees in Bulgaria to be removed to a distance of sixty kilometres from the frontier; (4) the Vakarel-Sofia-Zaribrod line of railway to be constructed as rapidly as possible, and the line from Nish to Pirot also, if practicable. Gen. Kaulbars informed the Servian Government that the diplomatic relations with the regency would not be recognized by Russia.

Russian Menaces.—After the elections diplomatic negotiations were resumed. The Russian agency transmitted a note from Gen. Kaulbars protesting against the complaint of the interference of foreigners in the elections, and delivered two other documents, one complaining of an attack on the Russian consulate, the other declaring the election of the Great Sobranje illegal.

Gen. Kaulbars returned to Sofia on Oct. 22. He refused to accede to the proposition of the regents that the powers should agree on a candidate within two weeks on condition that the meeting of the Sobranje should be postponed that length of time. Gadban Pasha on the 22d

presented a note from the Grand Vizier, requesting a postponement until Turkey could negotiate with Russia regarding the choice of a prince. The Turkish Government, influenced by Russian representations, objected to the meeting of the Sobranje, because the validity of the elections was contested. The Bulgarian Government on Oct. 23 addressed a circular to the powers announcing that the Great Sobranje would meet in Tirnova on Oct. 31, and proceed immediately to the election of a prince. The Turkish commissioner was informed that, if he doubted the legality of the elections, he might convince himself by attending the sittings of the Assembly.

On the 25th of October two Russian war-vessels anchored in the roadstead of Varna, ostensibly to protect the consulate and Russian subjects, according to the explanation given by the Russian Government to the great powers, though at the same time the Bulgarian Government was informed that the demonstration was intended as a protest against the convocation of the Sobranje. Baron Kaulbars announced that the execution of the officers arrested for the plot of Aug. 20 would be followed by immediate action on the part of Russia. On Oct. 28 the state of siege was proclaimed by the Bulgarian Government, on account of the attacks of the opposition press, and of a plot to overturn the regency, and set up a ministry under Zankoff. The Russian Government ordered all the steamers on the Black Sea to be in readiness to transport troops, of whom there were 40,000 ready to embark. Baron Kaulbars announced that sailors would be landed from the Russian frigates at Varna, of which there were now three, and informed the regents that if opposition were offered the town would be bombarded. On the 28th he delivered an ultimatum, declaring that if the authors of certain outrages on Russian subjects were not punished he would leave Sofia and break off diplomatic relations. The Bulgarian minister, Nachevich, asked the names of the offenders, but he answered he was not a detective.

On Oct. 31 the regency yielded to the Russian menaces, to the extent of releasing all the officers who were concerned in the plot to abduct the prince. Kaulbars demanded to know if the authors of a recent plot against the regency, for which two Russians and ten Montenegrins, with their Bulgarian accomplices, had been arrested, were included in the amnesty. It was the officials concerned in these arrests whose punishment he demanded.

The conduct of Gen. Kaulbars and the military preparations in the Crimea indicated that the Czar, who was known to have taken the management of the Bulgarian difficulty entirely out of the hands of M. de Giers and to be conducting it directly through Baron Kaulbars without regard to diplomacy or public law, was determined to forcibly intervene in Bulgaria. The German Government interfered to dissuade him from precipitate action. Their represen-

tations and the counsels of Russian statesmen deterred him from an attempt to subjugate the Bulgarians, whose ingratitude so incensed him. After Russia had sacrificed many thousands of her soldiers, had spent 8,000 francs for every Bulgarian, and burdened herself with a vast debt to liberate them, Alexander could not see how they could weigh their prince, or their Constitution, or their independence, against his wishes and the demands of Russian policy. The Porte through its agent at Sofia continually urged the regency to submit to the demands of Russia, in order to avert the occupation of the Roumelian seaports. It had been appealed to for suggestions as to the choice of a prince, but refrained from indicating a candidate, and in all questions showed entire compliance with the wishes of the Russian Government.

Russia received a distinct warning from Austria at the opening of the Delegations, when Count Kalnoky said that an occupation of Bulgaria of any kind would be a grave injury to the vital interests of the Hapsburg Empire, which did not wish peace at any price, and in the event of a conflict would not stand alone. The alliance with Germany, he explained, did not bind either empire to defend the separate interests of the other; yet mutual interests constitute the base of the alliance, and the continuance of each country as a strong and independent power forms for both an important interest. This declaration followed Lord Salisbury's exposition of British policy at the Guildhall banquet, where the English premier said that England had no isolated interests in maintaining the freedom of Bulgaria, yet she had a corporate interest, and would join the other powers, or any considerable portion of the powers of Europe, if an occasion should arise for vindicating the Treaty of Berlin, and that the opinion and judgment of Austria in this matter would have enormous weight in the counsels of the British Government. This presage of a military and financial alliance between England and Austria-Hungary was echoed by Count Kalnoky, who said, "England will be on our side if it should become necessary to defend the state of things created by the Berlin Treaty."

Attempted Insurrection at Burgas.—The Eastern Roumelian port of Burgas was the scene of an attempt of Russian agents to raise a revolt against the regency on Nov. 4. Capt. Nabokoff, a Russian officer who had been prominent in the conspiracy against the prince, placed himself at the head of a band of Russians and Montenegrins, who were joined by Lieut. Kisheneff and some of the soldiers of the garrison. They seized the prefect, mastered the Bulgarian soldiery, took possession of the public buildings, and proclaimed the sovereignty of the Czar. Bulgarian troops, from the neighboring towns of Aitos and Karnobad, conducted by Capt. Karavanoff, the commander of the Burgas garrison, who had made his escape, quickly arrived on the spot, suppressed the

revolt, put the raiders to flight, and reinstated the authorities. A simultaneous plot at Philippopolis was checked before the occurrence of any disturbance. The ringleader, a Russian named Novitzki, was arrested with damaging papers in his possession, implicating Kovandjeff, the dragoon of the Russian consulate, and Popoff, who was formerly in the employ of Aleko Pasha. Risings in other places were put down without difficulty. Nabokoff was arrested in the Aitos district, while collecting a force to lead against Philippopolis.

The Great Sobranje.—The National Assembly was opened on Oct. 31. Stambuloff and Col. Mutkuoff were present, and the former read the opening speech, which concluded with the words, "Long live free and independent Bulgaria!" Karaveloff, whom the deputies had threatened to remove from the regency, remained in Sofia, and was in confidential communication with the Russians. Among 450 deputies there were 78 Zankoffists. In spite of the protests of the Porte, deputies from Eastern Roumania sat and voted in the Assembly. On Nov. 10 Prince Waldemar of Denmark was elected Prince of Bulgaria by acclamation. A deputation of five members of the Sobranje started for Cannes, where the Danish prince was, to formally offer him the crown. The same day Karaveloff, after having protested against the election of a prince, sent his resignation as regent. Prince Waldemar announced that he had referred the question as to his acceptance of the proffered crown to the decision of his father. The King of Denmark telegraphed on Nov. 13 that he could not allow his son to accept the election to the throne. At a meeting of the Sobranje held after receiving this message the regents Stambuloff and Mutkuoff offered their resignations. The house refused to receive them, but accepted Karaveloff's by acclamation, and elected Zivkoff, the President of the Sobranje, in his stead. Karaveloff, who had, when prime minister, enjoyed unbounded popularity as the leader of the movement for national independence, but who deserted the cause of the prince immediately after, if not before, the latter's abduction, and now identified himself with the Russian party, was denounced as a traitor in a resolution of the Assembly. After appointing a deputation to visit the different European courts, the Sobranje adjourned.

The Russian Choice for Prince.—The separation of the Sobranje, and the refusal of the Czar's brother-in-law to accept the Bulgarian throne, brought the question again into the range of diplomatic action. Germany and Austria invited Russia to indicate a candidate whom she would favor for the vacant throne. The Russian Government proposed Nicholas Davidovich Dadian, Prince of Mingrelia, a descendant of a distinguished Caucasian family, a Russian subject, and the son-in-law of Count Adlerberg, the household minister and intimate of the late Czar. Germany offered no opposition to this

choice, but objections were raised by England, and in Bulgaria such a candidate was strongly disapproved by the popular party.

Departure of Kaulbars.—Notwithstanding the protests of the Russian agent, the state of siege was again proclaimed at Sofia, and, after the Bourgas affair, at Philippopolis and other places. On Nov. 14, Gen. Kaulbars declared the trial of the Bourgas conspirators null and void. Capt. Nabokoff, the officer of the Russian army who, in the Czar's uniform, led the attempted insurrection, was tried and condemned to death by court-martial, and then handed over to the Russian authorities. Another complaint was raised about a Russian *cavass* that had threatened a constable who demanded his name and passport with a pistol, and was arrested, but given up to the Russian consul when it was known who he was. Gen. Kaulbars again threatened to leave Bulgaria, with all the Russian consular officials, if the police commissioner of Philippopolis were not dismissed on account of this alleged indignity. On Nov. 19, after confiding the protection of Russian subjects to the German consul-general, Kaulbars left Sofia and went to Constantinople. In his note to the Bulgarian Government, announcing his departure, he said that the Government had rejected Russia's counsels, which were intended to extricate Bulgaria from her difficulties, and had continued its insolent attacks on Russian subjects; and that, as Bulgaria had lost confidence in Russia, his further presence was useless. The departure of the Russian agent was not intended as a prelude to armed intervention, such as was intended when he before threatened a rupture, but was the consequence of the abandonment of the military policy in the face of the firm attitude of Austria, supported by Germany, in her resistance to the occupation of Bulgaria, and having the diplomatic support of Italy also, and the offer of a British alliance.

In the beginning of December the Porte urged the Bulgarian Government to accept Prince Nicholas of Mingrelia as the only means of pacifying Bulgaria, admitting that the regency must maintain order, but advising the regency to close the door to eventualities that might arise so long as there existed an opposing element. The regency replied that Bulgaria would never accept the Prince of Mingrelia, but that a new Great Sobranje would be called if the Porte would propose a suitable candidate for the throne.

BURMAH, a country in Farther India, formerly the independent kingdom of Ava, as it was officially styled, annexed to the British Empire on Jan. 1, 1886, by the following proclamation, issued by Lord Dufferin, Viceroy of India:

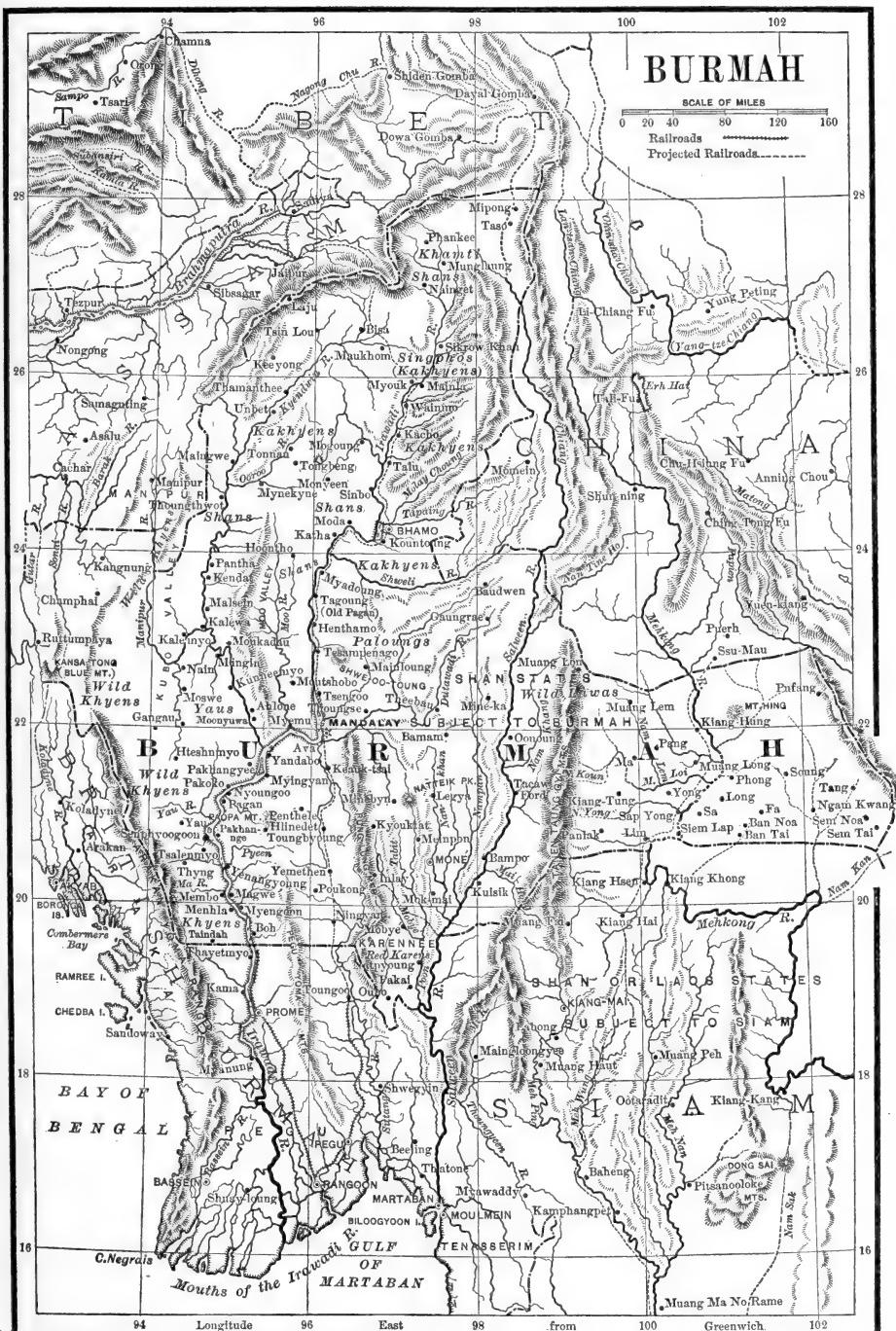
"By command of the Queen Empress, it is hereby notified that the territories formerly governed by King Thebaw will no longer be under his rule, but have become part of her Majesty's dominions, and will, during her Ma-

jesty's pleasure, be administered by such officers as the Viceroy and Governor-General may from time to time appoint."

Thebaw Min, the last King of Burmah, was born in 1858, and succeeded to the throne in October, 1878, after the death of his father, Mindoon Min, who drove his brother, Pagan Min, from the throne in 1853. Thebaw, after he was taken prisoner by the British in November, 1885, was assigned a residence in India, where he is interned.

Government.—The system of government in Burmah has been a pure despotism. The revenues were at the absolute disposal of the monarch. The ownership of all the land was either vested in the crown, or had been bestowed on favorites of the King. There was a Privy Council, called the Byadeit, consisting of four Atwen-Woons, who advised the King privately, and discussed questions before they were presented to the Hlootdaw, or public ministry. The latter consisted of four Woon-Mengyees, who held their deliberations under the presidency of the King or the crown-prince, in open meetings before the public. Four assistant ministers, with a multitude of secretaries and subordinate officials, conducted the administration at the capital under the orders of the Hlootdaw, which possessed supreme judicial, as well as executive and legislative, functions. The kingdom was divided into provinces, ten in number, over each of which presided an Hkhay-in-Woon, or umbrella-bearing chief. Woondouks administered the districts of these provinces, Woons the subdivisions of the districts, and Myo-okes the townships. These officials of various grades exercised judicial as well as administrative authority.

Area and Population.—The area of Independent Burmah has been estimated at 190,000 square miles, and the population at 4,000,000. The Burmese, as distinguished from the Karens, Sachyens, Shans, and Chinese settlers, are supposed to number not over 1,000,000 souls. They are a mixed race, sprung from Mongol hunter tribes from the north, Chinese colonists, Pelugu immigrants, and Malayans. They have the facial type of the Chinese, and in other physical characteristics resemble the Malays. They are an active, lively people, fond of athletic games, brave and energetic, but too much devoted to pleasure for continued labor. The condition of the poorer classes has deteriorated during the reign of Thebaw, who, however, kept opium out of the country, and saved his people from the vice which threatens their kindred in British Burmah with total ruin and extinction. The women mingle freely with the men, and exercise an influence in business and in public affairs fully equal to that of the stronger sex. The Burmese are good-natured, generous, and hospitable, but all classes show a singular disregard for human life and indifference to scenes of cruelty and suffering. Those of official station develop arrogance of character, duplicity,



and rapacity. The magistrates and governors often condemn persons to torture or death without a hearing, and have been such merciless extortioners, especially in recent times, that the people are reduced to wretched poverty, and have little motive for industry. The people of the lower ranks are remarkably honest and truthful. Owing to an excellent climate the Burmese are robust, and attain the normal length of life. The deaths of children under five years of age form a much smaller proportion of the total number of deaths than in Europe, being less than 28 per cent. of the deaths at all ages. Polygamy has been abolished during the reign of Thebaw, though still existing in a disguised form. Slavery is also legally prohibited, yet not suppressed. The people are divided into seven classes, viz., the princesses and princesses of the royal house; the official class; the land-owners; the phoongyes, or Buddhist priests; the farmers; the coolies; and the outcasts. Buddhism is the religion of all, except the savage Shans, who are spirit-worshippers. The Karens have a legend of having deserted their god and lost their birthright, and believe in a prophecy that through white strangers from the West they will recover their religion, their national unity, and the high state of civilization they enjoyed before they were driven to wander from their original country over wide deserts. This accounts for the extraordinary success that American Baptist and European Roman Catholic missionaries have met with among them.

The Burmese regard their king with a peculiar religious devotion. They can conceive of no social system according to their religion without a king, who has passed through stages of existence raising him to a vastly higher plane of being than their own. This feeling is not directed toward the person of the King, nor even to the dynasty. The English in abolishing the Burmese king offended the people of British Burmah scarcely less than those of the kingdom, and provoked risings even in their own provinces, where civil order had long prevailed. The extravagant titles given to the Burmese King indicates the reverence in which his office is held. He is styled king of sea and land; lord of the rising sun, who rules over Sunnaparan, Zampodepa, and all the umbrella-bearing chiefs of the Eastern countries; master of the celestial royal elephant; lord of many white elephants; lord of gold, silver, rubies, and amber; the supporter of religion; the sun-descended monarch; light of the world; star of the earth; sovereign of the power of life and death; arbiter of existence, and great chief of righteousness; lord of the golden palace; king of kings, and possessor of boundless dominions, and of supreme wisdom. The people in the populous valley of the Irrawaddy, who were accustomed to the sight of strangers, viewed the invasion of the British with apathy, and were not displeased that their oppressive rulers should be overturned, though they knew

that they must come under British rule in some form. When they learned, however, that no prince of the royal house was to reign in the place of Thebaw, the whole population rose against the invaders.

Natural Resources.—Upper Burmah possesses an exceedingly fertile soil, capable of producing maize, wheat, millet, rice in the lower valley of the Irrawaddy, potatoes, cotton in all parts of the country, and luxuriantly on the dry lands of the upper provinces, tobacco, mustard, indigo, and in the north tea, which is indigenous. Fruits are abundant; sugar-cane is grown easily, but palm-sugar is the only kind made in the country, the cane being used only for munching. Gums and oils are found in the forests, and caoutchouc-trees are numerous in the districts of Bhamo and Mogoung. The most important article of export is teak-wood, which predominates in the mountain forests. The country is remarkably rich in minerals. Besides rich rubies and sapphires, mines of which have long been worked, jade of fine quality is exported. There are also quarries of serpentine. About 60 miles from the frontier of British Burmah, on the left bank of the Irrawaddy, is an oil-field, covering 16 square miles, in which about 300 petroleum-wells are in operation, varying in depth from 200 to 300 feet. There are silver-mines worked by Chinese, and gold is found in the sands of the streams in the upper country. Lead, tin, antimony, copper, bismuth, niter, amber, salt, and marble exist in the mountainous districts, most abundantly in the Shan states. There are deposits of magnetic iron-ore on the Myit Nga, a navigable river flowing into the Irrawaddy near Mandalay. Large deposits of coal are found, and have been worked to a small extent.

Commerce.—Formerly there was a considerable transit trade with China, but it has fallen off. The foreign commerce is chiefly with Lower Burmah, Bengal, the Asiatic Archipelago, and European countries. It all passes through Lower Burmah. The imports consist of rice, cotton and woolen fabrics, silks, salt, metals, pickled and dried fish, and European manufactures. The imports from British Burmah were valued at 14,858,860 rupees in 1882; 15,810,790 rupees in 1883; and 18,261,140 rupees in 1884. The exports, not including teak-wood, were valued at 13,033,750 rupees in 1882; 16,706,820 rupees in 1883; and 17,058,480 rupees in 1884. They consist chiefly of petroleum, niter, lacquer-ware, hides, cutch, sesamum-seed and oil, cotton, raw sugar, grain, jade, and tamarinds.

The Revenue.—The receipts of the royal treasury in the reign of Thebaw were estimated at from 85 to 105 lacs of rupees. There were a house-tax, a poll-tax, and taxes on agriculture, fruit-trees, sugar-palms, tobacco-land, teak-forests, salt, fisheries, etc. The British authorities on assuming the administration, proposed to abolish the customs

duties, yielding 15 lacs, the transit dues, amounting to 9 lacs, and the monopolies producing 6 lacs, which latter loss would be made good by the imposition of stamp duties. The expenses of the military expedition, amounting to 40 lacs, were made a charge upon the Indian revenue, after considerable discussion in the British Parliament. The Indians themselves unanimously opposed the conquest, and afterward the annexation of Independent Burmah, and protested against being made to pay the cost of the war. The military expenses of 1886 swelled the amount to many times the cost of the expedition. The administration endeavored to keep the expenditures within the limit of the revenue from the conquered country, but, when obliged to abandon a blundering policy of false economy, changed the basis of calculation, and promised that the expenditure would not exceed the revenue of the newly annexed province and the surplus revenue of British Burmah.

History.—The Burman state owed its rise and growth to the boundary disputes between its powerful neighbors, China, Siam, and Pegu, and, when threatened by either of them, received assistance from the others. After Pegu had conquered Burmah, in 1758, a partisan leader named Alaungpra, the founder of the present dynasty, recovered the national independence, with English assistance, and subjugated Pegu. After the conquest of Assam, Aracan, and Manipoor the Burmans imagined themselves invincible, and attacked the territory of the East India Company. On March 5, 1824, the British declared war, and in the following May landed 6,000 men, under Sir Archibald Campbell, in Pegu, and occupied Rangoon. The English troops suffered from various epidemics, losing 72 per cent. of their numbers, and were valiantly opposed by several Burman armies, but after two years they overcame all resistance, and were marching upon Ava, the capital, when the King made terms of peace, giving up the provinces of Aracan, Tenasserim, and Assam, and paying an indemnity of five crores of rupees. He also agreed to receive an English resident in Ava. Such is their superstitious belief in the might of the King, that the Burmans to this day believe in the truth of the proclamation issued by the King, which said that because the strangers were exhausted and perishing, he let them remain in the country, and gave them money to pay their expenses. In 1852, provoked by the arrogance of Pagan Min, then King of Ava, the British again declared war against Burmah, and secured the Siamese as allies. Even after the British troops had overrun the whole country, and captured the capital, the King would not sign a peace, but only declared through an envoy that he would not disturb the English in the province of Pegu, which Lord Dalhousie had annexed by proclamation, if they would cease hostilities. This third province in Lower Burmah united those previously acquired, and

shut off the kingdom entirely from the sea. After their former defeat the Burmans had transferred their capital from Ava to Amarapura. Now a new royal city was erected near Ava, but at a distance from the river, in order to be beyond the range of English gunboats. Pagan was deposed because he would not make peace with the English, the popular War Prince passed over, and Mindoon made king. The Indian Government has since then endeavored in vain to induce the King of Ava to abolish the royal monopolies that hamper trade, to accept the frontier claimed by the British, and to receive the British resident as an equal, and not compel him, like all other persons, to remove his shoes and assume a crouching attitude in the royal presence. In 1867 the entire course of the Irrawaddy was opened to navigation; but fearing that the people in the northern province would emigrate into British Burmah in masses, as had the inhabitants of the southern districts, the King forced the Chinese merchants to transport their goods over the difficult southern route, through Theini and Thebaw, to Mandalay, instead of holding market, at Bhamo, as formerly. In 1875 he gave up his pretensions over the southern Karens, but took no part in the demarcation of the boundary, which was carried out the following year by the Indian authorities alone. The closing of the Bhamo route interfered with the English export trade with Yunnan. The difficulty with China, after the murder of Margary on the frontier of Yunnan, and the quarrels with the Burman Government, and disturbed state of the country almost put an entire stop to this profitable trade for some years, but recently it has been resumed by the Bhamo route. The English expected to force their views on the shoe question upon Thebaw when he came to the throne, and accordingly the resident received instructions in 1879 not to appear at court unless allowed to wear his shoes and stand erect. The Burmese Government retorted by forbidding Europeans to enter the palace buildings. Many Europeans, among them the English resident, were subjected to insults in the streets. In September, 1879, Mr. Sladen, the British representative, was recalled, the Italian consul undertaking to care for the interests of British subjects; and since then there has been no British representative at the court of Ava. Thebaw and his ministers, although firm on the shoe question, because it would have offended the moral and religious sensibilities of the people to have the sun-descended monarch approached like an ordinary mortal, were very desirous not to offend the British, and in order to restore friendly relations and explain the situation sent an embassy to the Viceroy. Their envoys, however, were refused an audience at Calcutta.

The Royal Family.—It has been the custom among the princes of the Alaungpra dynasty to have many wives and concubines. The heir-apparent marries for his principal wife the

princess of highest rank, who is usually one of his half-sisters. The kings have always had large families. Mindoon had as many as 110 children, of whom 72 were alive at the time of his death, while of his 53 recognized queens 37 survived him. When he was placed on the throne by the peace party, the War Prince, who was the rightful heir, retained the title of crown-prince, with the understanding that he or his issue should succeed to the throne, to the exclusion of the sons of Mindoon. To overturn this arrangement, Mingoon and Min-goon Deing, the eldest sons of Mindoon, originated a rebellion in 1866, in which the War Prince was slain, and the king had a narrow escape. The princes were finally routed by the royal forces, and escaped to India, where they were detained as political prisoners. Min-goon's brother died there, and he himself finally escaped to Pondicherry, where he has since been a pensioner on the French Government, and has acquired European habits, knowledge, and modes of thought, and a high respect for French civilization. Thebaw, who was Mindoon's son by an inferior queen, a Shan princess, was raised to the throne by a palace intrigue, concocted by the principal queen and Tinedah Mengyee, then captain of the palace guard. He was to have married both daughters of the first queen, but the elder one fled to a monastery. The younger princess, Soopayalat, was for a time his only queen, a circumstance that excited the contempt of the Burmese, who saw that the young King was governed by his wife and mother-in-law, and would have preferred to be ruled by a more energetic prince, and by one who followed the polygamous customs of his ancestors. Though he took a second queen subsequently, in order to please his subjects, Soopayalat retained her dominion over him. On the accession of a new King the members of a rival faction in the royal family are sometimes murdered or thrown into prison, and such massacres are approved of by the people, because they thus escape the evils of palace revolutions and dynastic wars. When Thebaw ascended the throne, a massacre took place, the victims of which are said to have numbered 72 princes and princesses of all ages. Among those who escaped was Nyung Yang, who, like the Mingoon prince, came before Thebaw in the order of succession. He took refuge in Calcutta, and, soon after the rupture between the Indian Government and the Court of Ava, he appeared on the British frontier of Burmah, raised a rebel army, and for two months was successful against the forces of Thebaw, but toward the end of June, 1880, was thoroughly beaten. He returned to Calcutta, and was detained thereafter as a prisoner of state. His death, about the time of the Burman expedition, left no candidate for the throne of Thebaw sufficiently near to the direct line of succession to be generally acceptable to the Burmans, except the Mingoon prince, whom the British would not trust on account

of his French education. They therefore decided on annexation instead of a protectorate.

Relations with France.—After Lord Dalhousie annexed Pegu, and shut off Independent Burmah from the seaboard, he declared that he held the remainder of the kingdom of Ava in the hollow of his hand. The Burmese statesmen have since that period shown much shrewdness and tact in their endeavors to prevent the inevitable absorption of their country by Great Britain. While guarding against the diplomatic efforts of the English to establish a protectorate by insidious encroachments on their independence, they have sought in recent years to gain an international footing by entering into relations with other European countries. These efforts were begun in the reign of Mindoon. In 1872 an embassy visited the courts of Italy, France, and England. In 1874 a second mission was sent to the same capitals, and in 1877 another, which also visited Madrid. Besides the English commercial treaty, dating from 1862, treaties were concluded with France, Italy, Spain, and Persia. In May, 1882, a Burman envoy was sent to Simla with an offer to receive a British resident, with his guard, provided the Indian Government would abandon its demands on the shoe question and that of the trading monopolies. In October, 1884, there was a mutiny in a Burman jail, in consequence of which 300 prisoners were killed, among them some British subjects. This event was the occasion of a clamorous agitation in favor of annexation among Rangoon merchants and Anglo-Indians of all classes, such as was constantly revived so often as any act was committed by the Burman Government or people that could be construed as an international grievance. In order to escape English domination the Burmese Government threw obstacles in the way of English trade, though contributing thereby to the impoverishment of its own people, but favored Italian, French, and other foreign traders in every way. The Anglo-Indian merchants and English manufacturers, who suffered from this policy, urged that the fact that the kingdom was misgoverned and disturbed by rebellions, and that Thebaw was, as they pictured him, a cruel monster, addicted to gin, given to horrible orgies, and probably insane, was a sufficient ground for conquering the country. The British Government kept the way open for intervention at any time, but was not disposed to act while it had the Egyptian and Afghan difficulties on its hands. Lord Dufferin, in a dispatch dated March 24, 1885, said that "hitherto our treaties have been on the whole respected, our commerce has received protection, and our officers have succeeded in maintaining friendly relations with the officials on the Burmese frontier districts." But he added that a change in the situation was being effected by the efforts of France to secure a footing at Mandalay, that would give her powers of interference with British commerce, and lead to political complications. M.

Haas, the French consul at Mandalay, with political as well as commercial objects in view, was at this time endeavoring to secure commercial privileges for French speculators, and did not scruple to hold out promises of French support to the Burmese ministers. Tangyet Woon was sent by the Burmese Government on a diplomatic mission to Europe. He concluded a commercial treaty with Germany, and a supplementary treaty embodying the same provisions with France. It gave the rights of free navigation and circulation, of trading wholesale or retail, of immunity from special taxation, of buying, possessing, and selling land and houses, and of directly dealing with the natives without the intermedium of the royal brokers, who have been the standing grievance of foreign trade in Burmah. Tangyet warned his Government against relying on France for political support. But Tinedah and the others who possessed the King's ear concealed the dispatches. Tinedah was virtually prime minister, though Kinwoon, an old Ming-ye, once an ambassador to Europe, and an advocate of peace and moderation, was his superior in rank. Consul Haas negotiated a convention with the Burman Government, giving French companies the privilege of establishing a state bank, a monopoly of railroad construction, a lease of the forests, and the collection of navigation dues on the Irrawaddy. This convention was reported to have been secretly accepted by the French Government, but M. de Freycinet, when interrogated in September, 1886, informed Lord Lyons that France sought no exclusive commercial privileges in Burmah. The extravagant tastes of the Queen were said to be the reason for bestowing valuable concessions for an insufficient consideration. Her demands for money are supposed to have led the Government to bring a charge against the Bombay and Burmah Trading Company, which had the monopoly of the teak-forests. The company was accused of removing 56,177 logs without paying the royalty. The Burmese court that tried the case was the Hloodaw, which decreed a fine of nearly \$1,250,000 against the company. It was rumored that M. Haas had promised to find French contractors for the forest leases, if the franchises of the British company should be annulled. Lord Dufferin, in his report of March 24, intimated that the Indian Government would soon be compelled to demand the admission of a British resident with an escort at Mandalay. He now embraced the quarrel of the Trading Company, and supported the demand to have the dispute referred to arbitration. In a letter to the Burmese ministry, dated Aug. 28, 1885, and signed by the Secretary to the Chief Commissioner of British Burmah, the Burmese Government was asked to suspend the judgment against the trading corporation, to submit the matters in dispute to an arbitrator appointed by the Viceroy, and to promise to abide by the arbitrator's decision. The Burmese ministry replied that

the case had been judicially investigated, and that the Government would not interfere with the execution of the law.

The British Ultimatum.—On October 22, E. S. Symes, the Chief Commissioner's secretary, dispatched a letter to the Burmese Minister of Foreign Affairs, refusing to accept the reply to the note of August 28, and making the following demands: 1, that an envoy from the Viceroy and Governor-General shall be suitably received at Mandalay, and that the present dispute between your Government and the Bombay-Burmah Trading Corporation shall be settled with his concurrence; 2, that all action against the Bombay-Burmah Trading Corporation shall be suspended until the envoy arrives; 3, that for the future a diplomatic agent from the Viceroy shall reside at Mandalay, who shall receive becoming treatment at the hands of your Government, and shall be supplied by the British Government with a British guard of honor and a steamer. The envoy and the permanent resident were to have free access to the King, and should not be required to submit to the obnoxious ceremonies of the court. The letter also contained the demand that the external relations of Burmah should be under the control of the Government of India, and required the Burman Government to grant facilities for opening up railway communications with China by way of Bhamo. Warlike measures were threatened in case the Burmese Government did not reply by the 10th of November with the unconditional acceptance of the first three requirements, and a general acquiescence in the wishes of the Indian Government on the other two subjects.

Kinwoon and the Queen's mother counseled the King to accept the English demands; but the war party prevailed. The reply to the British ultimatum was dictated by Tinedah, Athlayment Woon, and Kyung Mung Woon, the representatives of the Old Burmese party, and was pronounced unsatisfactory and hostile by the British authorities. The British resident, it was pointed out, had left Mandalay of his own accord, and the Indian Government had broken off diplomatic relations to the regret of the King, who would welcome the return of an English representative; yet no reference was made to the shoe question. The Bombay company was told to present an appeal to the King, and its case would be investigated. With regard to the British demand to control the foreign relations, the King replied that he must first consult Germany, France, and Italy.

Gen. Prendergast was prepared to move a hostile force up the Irrawaddy if, as was expected, the ultimatum should be rejected, while Col. Sladen, who had been the last British resident in Mandalay, was ready to proceed as special envoy to the court of Ava in the contrary event.

The British Conquest.—An army of 18,000 men, including camp-followers, was collected at Thayetmyo, the last British station on the

Irrawaddy, before the expiration of the ultimatum. A flotilla of steamers and floating batteries was organized by Mr. Bernard, the Chief Commissioner of British Burmah. Gen. Prendergast's force consisted of six British and eleven native infantry battalions, about 14,000 bayonets, one native mountain battery, and four garrison batteries of royal artillery, of which one was an elephant battery. The "Irrawaddy," a light-draught steamer, was heavily armed with two 25-pounder rifled breech-loaders, two Nordenfeldts, two machine-guns, and torpedoes. A steam-launch, the "Kathleen," had been armed and protected with 4-inch plates. The "Thamby-a-dine," a small steamer, was arranged for carrying the general and his staff. Four large barges had been fitted up as floating batteries, each with two howitzers throwing 60-pound shells. Another barge carried a broadside-battery of six howitzers, and, in her bow, two 40-pounders. Six iron steamers of the Irrawaddy Navigation Company were engaged as transports, and the flat-boats which, in ordinary times, are towed up and down the river freighted with merchandise, were prepared for the transportation of troops, with compressed cotton-bales at the sides as a protection against rifle-balls. The steamers were also crowded with soldiers. A naval brigade, five hundred strong, accompanied the expedition.

The Burmese Government had garrisoned the forts near the frontier with about 2,000 men. Italian engineers, who had been some time in the King's employ, had constructed a strong masonry fortress, called the Kuligon fort, opposite the town of Minhlā. It commanded the river for about two miles, and mounted ten guns, none of them of heavy caliber. The fort within the town of Minhlā, which had been much damaged by floods, was repaired for the emergency as well as it could be. Besides these fortifications, which were sixty miles from the frontier, there were none of consequence on the river excepting the Singon or Ava group, consisting of three masonry forts, a short distance below Mandalay. The Singon or Ava fort was to the west of Ava. On the opposite bank was the Sa-gaing fort; and above Ava, commanding the river for two miles, the Thalayidan fort.

The Italian engineers attempted, with much skill, to sink stone-laden barges with pointed posts in their bottoms and other obstructions in the Irrawaddy; but, owing to the shortness of time for preparation and to the great swiftness and depth of the current, it was impossible to effectually block navigation. River-torpedoes, bombs, and fulminate of mercury were manufactured by Italian workmen, under the direction of an engineer named Molinari.

King Thebaw issued a bombastic proclamation declaring that if the English barbarians, who were making war with the object of destroying the Buddhist religion and lowering the national honor, should attack any part of

his dominions, he would march against them in person, exterminate them, and capture their country. Still, the Burmese Government did not expect that the British would resort to an invasion, notwithstanding their warlike preparations. A steamer that had been detained by the authorities at Mandalay was sent down the river with a letter to the Chief Commissioner, urging that the steamers of the Irrawaddy Flotilla Company should resume their voyages, as their absence caused distress in Mandalay. The English expedition, the second day after starting, met this steamer, which had run the gauntlet of the Burmese river-batteries.

On crossing the frontier, Gen. Prendergast issued a proclamation, stating that in consequence of the violation of treaties, acts of aggression on the frontier, outrages on British subjects, injustice to British trade, and a foreign policy opposed to British interests, culminating in the imposition of a fine of ruinous amount on a British trading company, followed by an evasive answer to the British ultimatum, the Government of India had decided to send an armed force against Mandalay, and to depose King Thebaw. He promised that the private rights, religions, and national customs of the people, would be respected, and that the services of any who showed zeal in assisting the British, would be recognized.

The expedition started from Thayetmayo on Nov. 15, 1885. The same day the Burmese steamer "Irrawaddy" was captured from under the guns of a newly erected shore-battery, which was silenced by the guns of the British gunboat "Irrawaddy" and an armed launch. The Burmese vessel was engaged in placing obstructions in the river, and had on board the Italian engineers Molinari and Camotto, who swam ashore with the crew. The battery at this place, which is called Inlat, was reached by the expedition on the morning of Nov. 16. A force was landed below with the intention of capturing the Burmese troops by a rear attack, but, before the column came up, shells from the "Irrawaddy" that were too well aimed had put them to flight. A strong stockade at Sinbungway, on the opposite bank, was deserted at the approach of a detachment of infantry and artillery.

On nearing the Minhlā forts on the morning of the 17th, Gen. Prendergast landed with a large body of troops to take the formidable Kuligon fort in reverse. The ramparts were crowded with soldiers. The gunboats opened a heavy fire, but only one gun responded. Many shells burst over the fort, and still the garrison remained; yet, when the British troops entered at the northern gate, which was not even barred, they marched out at the opposite portal in regular order. The force that landed to attack Minhlā was composed exclusively of sepoys. As Kuligon offered no resistance, none was expected from the weaker fort on the western bank. But the Burmese were there strongly stockaded, and showed, as

they have in former wars, that they can defend their national style of fortifications, which they are able to construct with the utmost facility and rapidity, with great obstinacy, so long as their flank is not turned. The Indian troops had to carry three stockades before reaching the Minhla fort, against which the steamers directed their fire. They had no artillery, while the Burmese had seven light guns mounted on their stockades, the heaviest of them, as in the other forts, nine-pounders, but worked by men having some knowledge of gunnery, which was unusual among the Burmese. The Madras infantry advanced against the first stockade through a difficult jungle country, but a harassing rifle-fire on their flanks, and the single cannon that opened fire on the column caused them to hang back, until, encouraged by the officers, two of whom were wounded, they carried the stockade with the bayonet. The second stockade was taken without difficulty. The third and strongest one, mounting five guns, which were well served, was stoutly defended. The column was once on the point of retreating, but at length charged the works, one officer losing his life. The Minhla fort was defended by 500 troops from Mandalay, strong and well trained, but with little heart in the conflict. The officer who led the storming party was killed. When the sepoy's rushed in, the Burmese retreated down a staircase, and, as they were crowded together, were mown down by a murderous volley. When they issued from the gate, they encountered a Bengal regiment that poured volley after volley into the dense mass. Many rushed into the river and were shot in the water, until the officers stopped the slaughter. The 280 Mandalay men who were left were sent down to Rangoon. They belonged to the King's standing army, and have no occupation but fighting. The other Burmese soldiers, who are peasants in time of peace, were all paroled. When Kuligon was taken, the "Irrawaddy" and "Kathleen" moved up the river close to the western shore. As they approached Minhla, two masked batteries suddenly opened fire on them. A smart artillery duel followed. The Burmese worked their guns with great determination, although their range was very short. They were supported by a number of riflemen. The "Irrawaddy" and "Kathleen" replied to the rifle-fire with their Nordenfeldts. One of the batteries which fired on the "Irrawaddy" was placed in the fort at Minhla, which is surrounded and overlooked by houses. A shell from the "Irrawaddy" struck one of the houses near the fort, the town took fire, and was nearly completely destroyed. It burned fiercely for about two hours. The "Kathleen" had a narrow escape from destruction. After Minhla had taken fire and the Burmese were driven out of the fort, she approached the shore, and moored close to a barge fastened to the shore. The barge was suddenly

fired by a mine concealed in her, and blew up with a loud explosion, severely shaking the "Kathleen," but doing no other injury. The battle took place on the 17th. The expedition remained at Minhla two days, during which the floating batteries, with the naval brigade and steamers with troops that had been delayed, came up. A strong garrison was left at Minhla. The two Italian officers in the Burmese service came and surrendered themselves. When the flotilla started there were twenty-one large steamers.

The ascent of the river was slow and difficult. On the 19th, Magwe, a town of 9,000 inhabitants, was occupied without serious resistance by the naval brigade; Yaynankhyown, 22 miles above, on the following day; and two other towns were taken possession of and garrisoned before they came to Pagan on the 22d. Here a force of 1,500 was found in position; but they were driven out after a brief bombardment, and the fortifications were occupied.

No further resistance was encountered until reaching Mingyan, the principal trading-town between the frontier and Mandalay. There a large body of troops were drawn up around a stockade on a hill behind the town, out of the range of the ships' guns. Hlaythin Atwin Woon, or the Burmese admiral, their best general, was in command. Along the banks were two batteries, mounting nineteen guns, and a series of well-constructed stockades and rifle-pits. The batteries were shelled for two hours before they were silenced, while the stockades were swept by Gatlings and Nordenfeldts. The Burmese returned to their positions again and again as soon as the ship that had silenced them had passed on. On the morning of the 24th the British landed and occupied the fortifications, which had been abandoned, but did not venture to attack the army encamped two and a half miles away, commanded by high officers, who could be distinguished by their golden umbrellas. A short distance above Mingyan they found a large number of flat-boats filled with stones, which the Burmese were attempting to sink in the channel. This attempt they abandoned after placing two or three in position, only to see them overturned and swept away by the current.

On the 26th, when the squadron was about 30 miles from Ava, it was met by a royal barge bearing a flag of truce. Two Burmese ministers brought a letter from the King begging for an armistice and offering terms of peace. He said that as he had always protected the interests of the flotilla company, of the teak-trade, and of British subjects in general, he had expected that friendly conditions would prevail. When the English invaded his country he felt obliged to resist in order to maintain the national honor. In his conciliatory reply to the ultimatum he had conceded some of the rights and privileges demanded, but could not decide on the others because

time was not given for deliberation over such important matters. Now, for the sake of peace and the maintenance of friendly intercourse between the two countries, he was willing to grant all the demands contained in the ultimatum. Gen. Prendergast replied, demanding the unconditional surrender of the King, with his capital and flotilla, and the disbandment of his army. The steamer that brought the barge was captured.

No reply having been received, the squadron prepared to attack the Ava forts, and steamed up the river on the 27th. The channel was blocked below the forts by a sunken steamer and a line of boats. These obstacles could be passed, but at Ava the channel was effectually obstructed. They were about to open fire on the lower redoubt when the envoys returned with the King's answer acceding to all demands. The Burmese commander refused to surrender the forts until he received orders from the King by telegraph. The position was very strong. It could not have been taken without heavy losses, and could not have been carried at all by the plan of attack decided upon, through ignorance of the country. When the British landed, the troops, 2,000 in number, were laying down their arms. Many were armed with Martini rifles. The rifles and 28 guns were placed on board the fleet, the forts and batteries dismantled, and 46 guns destroyed. After having found a passage through the obstructions in the river, the flotilla ascended to Mandalay.

Col. Sladen, the civil officer of the expedition, sent a letter to Kinwoon Mengye, calling on the King to come on board the flag-ship, according to the terms of the surrender; but he would not venture to leave the palace, fearing assassination. No answer being received, the troops landed on the 28th and marched in three columns to the city. Col. Sladen entered the palace, and to him the King surrendered, but obtained a promise that he should not be disturbed in his palace that night, and that the women might go in and out. A strong guard of British soldiers was placed around the enclosure; but, as orders had been given that women should pass freely through the Queen's gate, several hundred women from the town entered and carried off a large part of the valuable property. Col. Sladen interfered to save the crown-jewels.

The King was subjected to much indignity in his removal to the steamer, being obliged with his invalid Queen to walk some distance, and then paraded through the town in a cart drawn by oxen. This scene was productive of demoralization and anarchy, and during the following night, no precautions being taken to guard the town, there were serious riots, the sepoys were attacked, many people were killed, and amid the disorder people were robbed, among them the royal princesses, and houses were pillaged. These acts were all attributed to Burmese rioters and dacoits. The next day

five regiments and a battery of artillery were garrisoned in the town.

The King was deserted by his ministers at the approach of the British. They had already made up their minds to a British occupation, and were willing to accept a new King under a British protectorate as a relief from the weakness of Thebaw and the tyranny and extravagance of the Queen. If the high officials had not conspired to frustrate the arrangements for the defense of the river, the British could never have conquered the country without the simultaneous advance of an army by the land route. The ministers now welcomed the invaders and placed their services at their disposal.

The King, with his two queens and the queen-mother, were conveyed on a steamer, guarded by the naval brigade, down to Rangoon, and thence to Calcutta. He was accompanied by 78 officials, among them Kinwoon, the senior minister, whose departure took place without the knowledge of Gen. Prendergast, and was exceedingly inconvenient, as he was the man best qualified to aid the British authorities in establishing order.

The Civil Administration.—The task of reorganizing the machinery of civil government devolved upon the chief political officer, Col. Sladen. Because the military expedition had met with so little opposition from the inhabitants, it was supposed that the country would settle down quietly under British rule, if the officials were retained in office, and carried on their functions the same as before. It was decided to continue the Hlootdaw in power, composed of the same members as before, with the addition of Col. Sladen, who took the presidency. The chief place in the actual administration was given to Tinedah, because he had exercised the same powers under Thebaw, and because he had been the most powerful and inveterate enemy of the British, and therefore the most important man to be propitiated. So long as they expected that the native system of government would be preserved, and that another prince of the Alaungpra dynasty would be set on the throne, they served the English loyally. The merchants of Rangoon and the official class in India raised an interested clamor against a simple protectorate, and objected especially to Tinedah, and induced Mr. Bernard, on his arrival, to remove him, although he effectively held in check the elements of rebellion and disorder. When the officials saw that the national institutions were to be subverted, they secretly encouraged and aided the general revolt. Village feuds have always been common among the Burmese, and unusually so after the demoralization and disorganization of society resulting from the British annexation of Pegu. The prevalence of bribery under the last two kings enabled the leaders of bands of village raiders to purchase immunity. They thus became habituated to lawlessness, and their reprisals degenerated

into brigandage. Gen. Prendergast took his forces, except those that were posted at Mandalay and in the garrisoned stations below, up to Bhamo to overcome any military resistance he might encounter there, and complete the conquest of the country. Scarcely had he left Mandalay, when plundering and incendiaryism became rife in the immediate neighborhood of the capital. The King's soldiers, scattered about the country, most of whom had been allowed to take their arms away with them, had no means of living except by robbery. A decree was issued that no one should be permitted to keep arms, the effect of which order was to deprive the peaceful population of their means of defense against robbers, while the robbers themselves kept out of the way.

Changes in the Administrative Arrangements.—Annexation was not definitely decided upon until Lord Dufferin visited Mandalay, and telegraphed to the home Government on Feb. 18, 1886, recommending that course. He appointed a commission to draw up a code of laws for the new province, embodying such parts of the India acts as were applicable to Burmah. The penal and civil codes went into force there on Feb. 26, 1886, the date of the proclamation of the Queen-Empress, declaring Upper Burmah, with the exception of the Shan states, to be a part of British India. The administration was taken out of the hands of the Hlootdaw and intrusted to British officers in the middle of February. Col. Sladen, who was identified with the transitional policy of retaining the Burmese officials, was discharged from his post when the complete incorporation of Burmah in the British Empire was decided upon. He left on the 1st of April, and Sir Charles Bernard assumed the direction of the administration. A force of 4,000 Sikhs and Goorkhas was brought from India to act as a military police. Sir Charles Bernard attempted to administer the country with European officials, but the civil administration was a failure, because, having undertaken to defray the expenses out of the revenue of the country, he employed inexperienced persons, whose only recommendation was that they could speak Burmese. In July four commissioners, who were civil officers of large experience, with a considerable number of subordinate officials, were brought from India, enough to constitute a full civil staff. The country was divided into fourteen districts.

The Subjugation of Burmah.—In the early part of January there were about 10,000 insurgents in the vicinity of Mandalay. Flying columns that were sent out from Thayetmyo and from the occupied posts along the river were fired upon from ambuscades in the jungle, and encountered bands of 1,000 or more in stockaded villages, which were usually carried with heavy losses among the defenders and but slight losses on the British side, because the European ammunition of the Burmese was soon expended, and they were reduced to

scanty supplies of the coarse gunpowder of the country and slugs made from chopped-up telegraph wire and similar material. The Shans on the Siamese frontier raided the south-eastern part of British Burmah under the lead of a Buddhist priest. The British early adopted rigorous measures against guerrillas, shooting all who were taken prisoners. A colonel made a practice of photographing the death-agony in the faces of insurgents who fell into his hands, but was afterward tried and condemned to military punishment for his inhumanity. The military authorities made arrangements, after the conclusion of the expedition, to send a large part of the forces back to India; but, instead of reducing the army of occupation, they soon sent for cavalry reinforcements. The rebels were so determined in the national cause that, even when without ammunition, they still attacked British posts within a few miles of Mandalay with only their dahs, or short swords. By July there were 30,000 troops and military police in Upper Burmah, yet in most districts British authority did not extend beyond rifle-shot from their fortified posts. In the occupied cities anarchy and confusion prevailed, and secret hostility to the conquerors made itself felt in many ways. The forces in British Burmah were likewise re-enforced; but that country was also a prey to anarchy and rebellion. The lower province, which had been under British administration for forty and some parts of it for sixty years, was ravaged by bands of guerrillas, who burned villages, murdered Europeans, and attacked the forces that were sent against them. A rebellion in the province of Tenasserim was suppressed by the aid of American missionaries who led the Christian Karens to battle against the insurgents. The indiscriminate executions that the British resorted to for the purpose of intimidation only rendered the resistance of the people more general and more determined. The summary trials before officers who were not legally qualified to act as judges, the denial of the right of appeal in criminal cases, and other arbitrary treatment to which all classes were subjected, in Mandalay as well as in more disordered places, engendered a universal feeling of discontent.

Lord Dufferin issued a proclamation of amnesty. Many of the insurgents availed themselves of its terms. Among these was the brother of Boshway, yet after his surrender he was tried and condemned to penal servitude for life. Boshway himself offered to give himself up if his life were spared, but his offer was refused. He then gathered a much larger force and for months a whole brigade was engaged in keeping him in check. Lord Dufferin was strongly opposed to the slaughter of the inhabitants by scouting parties and the incessant executions ordered by the civil magistrates. But his orders on the subject were disregarded by the inexperienced officers and youthful magistrates, who, without legal expe-

rience, had the power of life and death placed in their hands. The scandals in the administration of justice partly ceased after complaints had been raised in the British Parliament. From the 1st of September trials resulting in sentences of death or transportation could be reviewed by the newly appointed commissioners and sub-commissioners.

With the re-enforcements that came before the rains flooded the country, and with the native police drawn from the Christian Karsens, employés of the Bombay company, and such peasants as would take English pay, the British established many posts away from the river, instead of merely scouring the country with flying columns, shooting at long range every native carrying a dah or a stick. The levies that were brought from the Punjab to aid in the work of pacification mutinied when their officers tried to restrain their cruel and predatory instincts, and killed, pillaged, and destroyed more ruthlessly than the worst of the dakoits. In the height of the rainy season sickness so prevailed among the troops that some of the posts previously occupied were abandoned. On August 16, through the neglect of the civil authorities to keep the embankment in order, the water broke through at Mandalay, inundating an area five miles long and two wide, embracing the chief commercial district of the town, and causing a great loss of life and property, and subsequent sickness and distress. The Burmese officials and the traders had warned the chief commissioner of the dangerous condition of the embankment, but no attention was given to their admonitions.

The Rebel Leaders.—The first of the princes of the dynasty who was able to collect a rebel army was the Myentzein prince, son of the War Prince, who conducted his operations from the Shan hills, that reach within seven miles of Mandalay, and received aid and protection, when hard pressed, from the Shan prince of Thebaw. The prince himself was a minor, but two of his uncles commanded his forces and conducted his affairs. He was for a long time the most important adversary of the British. All the principal insurgent leaders embraced his cause. From the time that he took the field until the summer rains rendered operations against him impossible, he occupied the country between Toungoo and Mandalay, and was allowed to fly the peacock-flag almost within sight of the capital. His sway extended over the Kyonsei district, reaching from Mandalay to the Sittang river, and down the Sittang valley. The death of the Myentzein prince, which occurred from fever in August, deprived the forces that had raised his banner of their coherence. But a partisan leader had appeared who proved a more formidable enemy to the invaders. This was a peasant named Boshway, who held the entire country from Irrawaddy westward to the boundary of Aracan. Burmese Woons led the insurgents in the

Chindwin district. Hla-Oo and Min-Oo, two bandit chieftains who combined patriotism with robbery, ravaged the Sagaing district, farther north. The Moatsobo district, north of Sagaing, was disturbed by irregular bands, re-enforced by Kachyens from the north. The Kachyen country was left alone by the British after the mountaineers had routed a strong column that was sent to punish one of their chiefs about the 1st of June. No attempt was made to conquer the Shan tribes, whose country extends along the eastern bank of the Irrawaddy, from Bhamo to below Mandalay, until after the rainy season. The Shans showed no disposition to accept the favorable offers made to them, but evinced great repugnance to the strangers, and were the most troublesome enemies the British had to deal with. They raided the Mandalay plain, carried off officials, and burned villages. To stop these forays the authorities forbade the export of salt and provisions to the Shan states, but they retaliated by destroying a considerable town. The Myentzein prince would not have been able to maintain himself so long without the assistance of the Shans. They gave succor and shelter also to a later Alaungpra pretender, the Limbin prince. The country south of Mandalay as far as Myingzan was brought under British rule so thoroughly that by September the telegraph was again working and the armed police were able to maintain order. The Pagan district, which in the earlier period of the occupation was exceedingly disordered, was gradually cleared of all considerable bodies of insurgents. Between it and the old British frontier dacoit bands still made trouble. To the southeast of Mandalay the country that had owned the rule of the Myentzein prince was still held by his now disorganized forces. Farther south, the Yemethen district was occupied by the Kyumendine prince, the most considerable of the Alaungpra pretenders after the death of the Myentzein prince. The country surrounding Ningyan, farther south still, was occupied by a youthful chieftain named Buddha Yaza.

Convention with China.—Before the expedition for the deposition of Thebaw and the conquest of Upper Burmah was undertaken, the British Government had consulted the Government at Pekin, and had given assurances that there was no intention or desire to impair Chinese rights or interests. After the annexation of the kingdom of Ava to the British Empire was proclaimed the Marquis Tseng presented the claims of China. First, he insisted on the recognition of Chinese suzerainty over Burmah. In the last century a war between China and Burmah terminated in the occupation of Burmah by a Chinese force, but only after the first army that was sent, which numbered 50,000 men, had been totally destroyed by the Burmese. The recognition of the supremacy of China by the payment of tribute was the basis of the peace then concluded. Accordingly, the Bur-

mese have since then sent an embassy to Pekin every ten years with tribute to the Emperor. Because the ambassadors usually returned with more valuable presents than they took to Pekin, some were inclined to deny that there was an acknowledgment of suzerainty implied in the decennial mission. The English Government, however, could not dispute the historical fact, and, according to its promise, agreed to recognize the nominal suzerainty of China over Burmah by continuing the periodical presents. The Chinese expected, besides, to be compensated for quietly allowing Great Britain to extend her dominions in the Indo-Chinese Peninsula up to the confines of China. The task of keeping in order the wild tribes on the northern border of Burmah, who have alternately acknowledged the sovereignty of the King of Ava and the Emperor of China by the payment of a nominal tribute, the Government of India was entirely willing to transfer to the Chinese authorities. But the Chinese did not regard the abandonment of the sovereignty over this district as a concession, but considered that the assumption of the duty of keeping the trade route gave them additional claims for compensation. They accordingly asked for the cession of the port of Bhamo, which is half peopled by Chinese, with its district, including the territory extending from Bhamo fifty miles down the Irrawaddy to the river Shwely, which would give them a natural and strategic frontier. The negotiations were prolonged till the 24th of June, when a convention was signed at London.

The British Annexation.—The British soon found that, although the conquest of Burmah and the overthrow of the Government had been accomplished by a military promenade, in which only seven of the rank and file of the invading army had fallen, the annexation would probably be the work of years, and would require the sacrifice of thousands of Indian soldiers, and swallow millions of treasure, instead of the £380,000 estimated as the cost of the expedition. In the interval between the capture of Mandalay and the proclamation of annexation a rebellion of formidable dimensions was begun. The ministers of the Hlootdaw, on whom the British relied to govern the country, secretly aided and encouraged the movement. The district officials left their posts and took part in the rebellion, which became general as soon as the Burmese awoke to the fact that their system of monarchy was doomed to extinction. Some of the more energetic of the seventy Alaungpra princes still living organized small armies. The British were shut up in the fortified posts along the river, but were not even able to keep the telegraph line open between the river towns. The revolt spread into British Burmah, and English

officials were killed and the Government resisted. The Shans, who were supposed to have no sympathy with the Burmese idea of monarchy, joined the rebel princes, and gave them refuge when pursued by the British flying columns. In order not to belie the representations made in England that the people of Upper Burmah were desirous of being taken under British rule, the operations undertaken to hold in check the rebel chieftains were described in the reports as being conducted against dacoits for the protection of peaceable villagers, although dacoity, or gang-robbery, such as once existed in Bengal, and is still practiced in Central India, is not known in Burmah.

When Sir Charles Bernard, the Chief Commissioner of British Burmah, arrived at Mandalay, in the latter part of December, he had Tinedah Mingye arrested and sent to Rangoon. This act confirmed the Burmese in the belief that the conquerors intended to subjugate them and overturn all their institutions, and consequently it increased among them the spirit of resistance.

When, after nine months of occupation, the English found themselves in possession of but a small portion of the country, and were only able to hold their ground with a large army, in which cholera and fever caused heavy losses, they determined to put forth strength enough to thoroughly reduce the country to their rule during the coming healthy season. Sir Herbert MacPherson, the commander of the military forces of the Madras Presidency, was placed in command of the army of occupation. As soon as the plains became dry enough for military operations, he took the field with the finest regiments of his army, but died soon after his arrival. As no other general of first-rate ability was available, Sir Frederick Roberts, the commander-in-chief of the Indian army, assumed the immediate command of the army in the field, and proceeded to Burmah in the beginning of November. He had at his disposal a force of over 40,000 fighting men, comprising ten battalions of European infantry, four regiments of native cavalry, a body of more than 800 mounted infantry, and nine batteries of artillery, including mountain and elephant guns. The native troops included Sikhs, Goorkhas, and Punjabee and Beloochee troops, and were composed of the best fighting material in the Indian army. Under the general-in-chief were three major-generals and six brigadier-generals. There were enough transport mules brought from India, and ponies and elephants obtained from the country, to enable the troops to keep the field for long periods. The river communications were kept open by a flotilla, consisting of three armed steamers, three armed tenders, launches with machine-guns, and a number of light-draught steamboats.

C

CABLE-RAILWAYS. As understood at present, a cable-railway is a line of steel rails along which carriages are drawn by a cable made of the best crucible steel wire. Twenty years ago, the only roads operated by cable-traction were comparatively rude affairs, for the most part provided with chains or hempen ropes. These tramways originated in England early last century, and were used mainly for haulage of coal. The first English patent, covering an improvement in the system, was issued to William Chapman in 1808. The patent distinctly foreshadows the present system. An endless rope, passes around a friction-drum revolving on a vertical axis at one end of the line, and at the other end is a grooved wheel around which runs the lower bight of the endless rope. This wheel is mounted upon a carriage which runs on an incline, and is sufficiently weighted to keep the cable taut. The burden-cars are attached to the main part of the rope between the vertical axis and the tension-carriage. (See Fig. 1.)

In 1812, E. K. Chapman proposed to stretch a chain along over the tramway, and provide each car with a friction-wheel turned by a crank. The chain was to be wound around the wheel, and when the crank was turned of course the car would move. Then came direct traction, by what was known as the tail-rope system, by which the cars were attached to a moving rope or chain which was wound around a drum at the top of an incline. The cars were drawn up loaded and descended empty, either

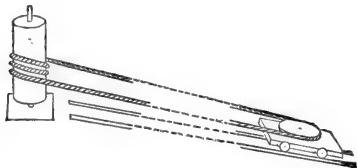


FIG. 1.—CHAPMAN'S PATENT, 1808.

by force of gravity alone, or aided by a "tail-rope," which was attached to the main rope, and was only strong enough to overcome the inertia of the descending train and cable. In 1834 William Jaines proposed to employ hollow rails as receptacles for a moving chain, and to attach carriages thereto. In 1846, E. W. Brandling devised a rudimentary grip, by which two boards were closed upon a moving rope, and the carriage was hauled along. These three inventions were of English origin. In 1858, E. S. Gardner, an American, proposed to inclose the moving rope in a tunnel provided with fixed sheaves, and a slot along its length. (See Fig. 2.) The problem of attaching the cars to the rope is dismissed in his claim as immaterial, any mode of connection being

permissible. This appears to be the germ of the present system of street-railways, which bids fair to supersede the horse-cars, introduced about 1850, in the United States, and soon transplanted to Europe, where they are now extensively used. Other patents contemplated the use of cables elevated on posts, and still others the use of locomotives in subterranean tunnels, connected with cars running on

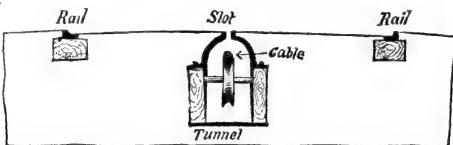


FIG. 2.—GARDNER'S PATENT, 1858.

the surface. Such were some of the earlier devices. To enumerate them all would involve a list of about 250 patents issued in the United States alone, and many in foreign countries.

It was not until 1870 that the first patent for a grip-pulley was issued to Andrew S. Hallidie, of San Francisco. Subsequently he took out many patents on the equipment of cable-roads, and in 1872 he succeeded in securing enough co-operation to justify the construction of a line on Clay Street, in San Francisco, Cal. The problem was to provide a means of transit to and from the high hills that rise a short distance from the water-side, and afford the best building-sites in the city. The difficulties encountered in operating horse-car lines on these hills suggested the need of some improved method, and in June, 1873, the construction of the Clay Street cable-road was begun. The terms of the franchise required that cars should be run on Aug. 1, and at 4 A. M. on the morning of that day the engine was started, and the wire rope, 7,000 feet long, ran smoothly over its sheaves and through the long tunnel. A dummy-car, provided with the inventor's grip, had been hauled to the top of the incline, and Mr. Hallidie himself was obliged to take charge of it—the courage of the man detailed for the duty failing at the last moment. Eight volunteers accompanied him, and the round trip was successfully accomplished, the car stopping at crossings, dropping the cable and picking it up again, and, in short, doing all that was expected of it. In the afternoon of the same day a public trial was attempted, with a passenger-car attached to the dummy. A very large, good-natured, and somewhat uncontrollable crowd assembled, and, after the down-trip had been safely made, the car was stormed in spite of the police, and about sixty persons insisted on a free ride up the hill at their own risk. This crowded the car far beyond its capacity, and subjected the cable and machinery to a

strain far greater than the engineers had anticipated for the trial-trip. With one trifling check, however, the perilous ascent was accomplished, the crowd racing alongside the car and fighting recklessly for places to hold on by. A month later the cars began to run regularly, and, save for the changes and alterations inseparable from new inventions, the road has been successfully operated ever since. A three years' trial so thoroughly demonstrated the usefulness of the system that other roads were built in San Francisco—some of them distinct infringements upon Mr. Hallidie's patents, and so adjudged by the courts—and at present there are more than fifty miles of street-railway in that city alone constructed practically on the same plan. Although designed at first only to overcome excessive gradients, it was found in practice that the system was more economical than horse-traction, even on level ground, and it is now extensively adopted in New York, Chicago, Philadelphia, and other large cities of the United States, and even in New Zealand. That it will speedily be introduced in all civilized lands can hardly be doubted.

The most approved construction of a cable-road for street-service calls firstly for a tunnel under the railway, in which an endless wire rope may run, resting upon a succession of fixed wheels or sheaves. The difficulties in the proper construction of such a tunnel are many, and it has only been by successive improvements that approximate perfection has been reached. The necessity of having an open, longitudinal slot in the top of the tunnel weakens the structure where it should be strongest, and renders it impossible to employ the ordinary cross-ties used in railway construction. The absence of these ties favors the tendency of the rails to spread apart, and the tendency of the grip-slot to close, and this is largely increased by the ceaseless jarring of the ordinary business traffic of the street. It was found impracticable to make any system of half-ties sufficiently rigid. Accordingly, the latest tunnels are so constructed that, if the whole street outside of the rails were washed away, the road-bed would remain intact, resting upon independent piers of masonry. To effect this, V-shaped yokes or ribs of iron are bent or cast in the required shape. The rails are bolted to the tops of the arms of the yoke, and the whole structure stiffened with cross-braces, resting upon solid piers, with foundations as deep as the nature of the soil requires. Within the arms of the yoke is the hollow iron tube, or tunnel, with its longitudinal slot, through which connection is made between car and cable. (See Fig. 3.) When all the parts are in place a mold is made, inclosing the whole framework, and the open spaces (excepting, of course, the tunnel) are filled with hydraulic cement. It will be noted that the carrying-sheave is not centered under the slot, as in Fig. 1. This is done to avoid the drip of water and dirt from the opening, which might injure the cables.

The existing system is made possible by the improved method of manufacturing wire rope, which is now made of crucible steel wire, capable of bearing a tensile strain of 120 tons to a square inch of sectional area. The lightness, strength, and comparative cheapness of

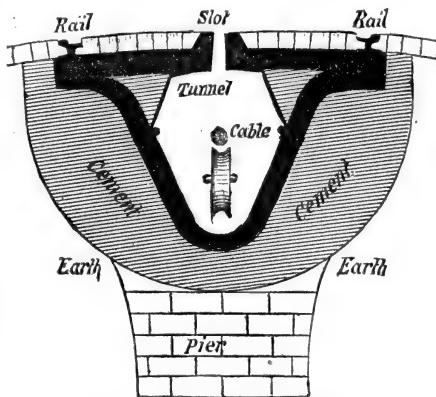


FIG. 3.—RECENT CONSTRUCTION.

the cable is an important element in the first cost. The maximum all-round length of an endless cable varies with the local conditions. The main line on Market Street, San Francisco, is 24,125 feet long, and works satisfactorily, but the line is straight and the grades moderate. The Clay Street line, in the same city, runs up and down grades varying from 1 in 28 to 1 in 6 $\frac{1}{2}$, reaching a height of 307 feet at a distance of 2,800 feet from the starting-point. The total length of the cable is about 7,000 feet. Provided the line is perfectly straight, and moderately level, it is evident that the cable will be held in place by its own weight, and will run upon the grooved carrying-sheaves; around a large wheel of at least 100 times its own diameter, at the end of the line, and back to the starting-point, without anything to hold it in position so long as it is kept taut. If it is to draw a heavy load, it must also be prevented from slipping. The device for keeping the rope taut is identical in principle with that of Chapman's patent (Fig. 1). Slipping is prevented either by taking several turns around a drum, or a half-turn around a grooved wheel, provided with automatic clasping-jaws, or as shown in Fig. 4, which is one of the most approved modern methods: A is the incoming and B the outgoing cable, C and C' are the friction-pulleys, D is the tension-pulley, and E the weight that pulls it away from C and C', and keeps the cable taut. The incoming cable just clears the top of C', passes three fourths round C', three fourths round C, below C', and thence round D, where it becomes the outgoing cable. The arrows show the direction of movement. The tension-pulley D is mounted on a carriage, not shown in the diagram, and the weight E is

made sufficiently heavy to take up the slack of the cable and render the friction around the pulleys C and C' ample for the required traction.

The foregoing contemplates the simplest possible conditions, namely, a straight, level course, with the driving machinery in direct continuation of the line of rails. In practice, these conditions are always complicated. The engine-house must usually be at one side of the track, so that the cables must be delivered and received at right angles with the service-line. This is easily

three feet apart. In this case the grip is not released, but a nice adjustment is required, so that the grip-bar shall fairly clear the sheaves and yet not receive too much lateral strain from the tension of the cable. This adjustment is effected by an iron guard, just above and a little in advance of the sheaves. Against this guard an attachment of the grip-bar bears while the car is rounding the curve.

In some situations the tunnel is unnecessary—such, for instance, is the bridge between New York and Brooklyn, where the track is given exclusively to car-traffic. In such case, while the same general rules govern the construction, the cable and carrying-sheaves are easily accessible for inspection and repair, while frequent traps or man-holes are required in a tunnel line. On the other hand, the cable,

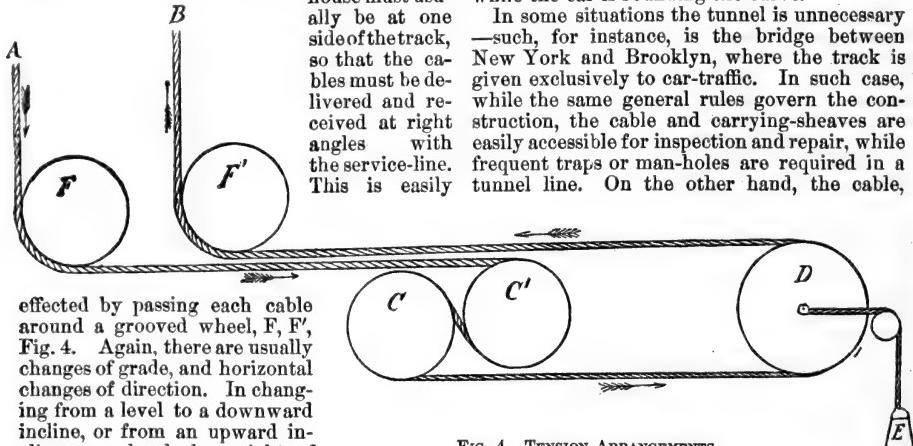


FIG. 4.—TENSION ARRANGEMENTS.

effected by passing each cable around a grooved wheel, F, F', Fig. 4. Again, there are usually changes of grade, and horizontal changes of direction. In changing from a level to a downward incline, or from an upward incline to a level, the weight of the cable will keep it in place; but the change from a level to an upward incline tends to lift the cable from its carrying-sheaves. At such angles depression-sheaves are placed at the top of the tunnel. They are exactly like the carrying-sheaves, and are hung so that the grip will pass below them by about as much as it passes above the carrying-sheaves. The same rule applies in a change of grade from a downward incline to a level. When the grip has hold of the cable, the latter is lifted clear of the carrying-sheaves at that point, but must, either by gravity or some mechanical device, return to them as soon as the grip passes.

In changing direction horizontally, two different methods may be followed. (See Fig. 5.) The heavy black line represents the cable, and the broken lines the rails. At the left the direction is changed by passing the cable around

a sheave turning on a vertical axis, and with its periphery touching the two lines of direction. In such a case as this the cable is released, while the car goes around the curve by its own momentum, aided, if possible, by gravity. At the right of Fig. 5 the cable bears sidewise against a series of sheaves, set about

being exposed to the weather, becomes wet, and often more or less coated with ice for its entire length.

The life of a cable appears to depend mainly upon the grip, and much ingenuity has been expended upon devices that can be trusted to bear any probable strain and yet will not wear out the cable. A grip that clasps the cable like a vise is the simplest and most trustworthy, but it is very destructive to the cable, because, while it is tightening, the friction must of necessity be great. On a railway in Hoboken, N. J., a cable was recently worn out in less than three months by a grip of this kind, while that on the Brooklyn Bridge lasted for three years, and even then did not show much external wear. Its inside strands, however, had been crushed by pressure and incessant use, for this cable runs day and night without stopping, and during the busy hours draws heavy trains at intervals of one minute and a half; 26,000,000 passengers were transported by this cable during the year. This difference in wear of cable is due to the use of a grip devised by W. H. Paine, C. E., which starts the car with

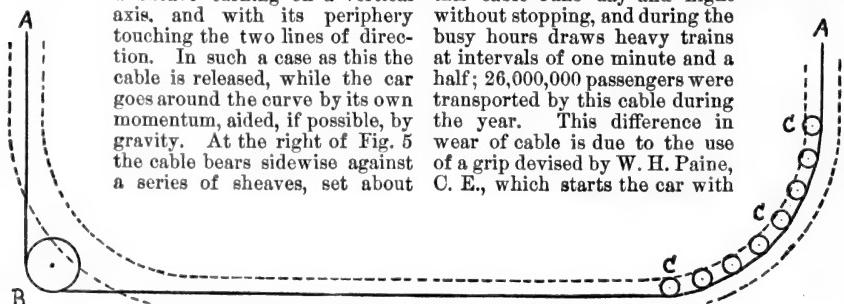


FIG. 5.—HORIZONTAL CHANGES OF DIRECTION.

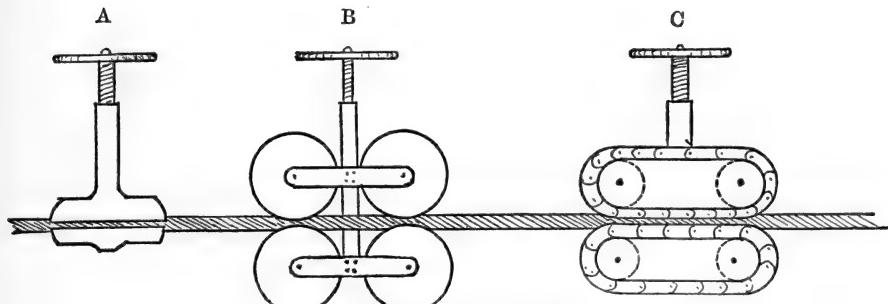


FIG. 6.—DEVICES FOR CABLE-GRIPS.

little friction, and does not grip the cable fixedly until full headway is attained. In Fig. 6 three different grips are indicated, A showing the solid, vise-like grip, B the four clutch-pulleys, as in the Paine method, and C Taylor's endless-chain grip. Details of the tightening arrangements are omitted in the drawings for the sake of clearness, but it may be said that the screw and the toggle or knee-joint are important factors. In the Paine method, attachments are made so that when full headway has been attained, a solid grip seizes the cable and receives the permanent strain. This acts automatically, so that when the car-brake is applied the solid grip is released, and the cable passes between the clutch-pulleys as fast or as slowly as may be desired. In the Taylor grip (C) closely fitting endless chains run in grooves around the vise-like jaws, and stop only when the pressure is made so great that cable, chain, and jaws become relatively fixed. The connection between the grip and the car is usually by means of a shank or shanks thin enough to pass freely through the tunnel-slot, and broad enough to bear all probable strains of traction.

Careful estimates have been made of the comparative running expenses of horse-railways and cable-railways, which, while they vary somewhat, are invariably in favor of the latter. The footings of two elaborate tables, giving the annual running expenses, are as follows: A horse-railway, 3 miles, double track, speed $4\frac{1}{2}$ miles per hour, 32 cars, $2\frac{1}{2}$ minutes apart = \$138,880. A cable-railway, same length, speed 6 miles per hour, 24 cars, and 24 dummies, $2\frac{1}{2}$ minutes apart = \$88,246.71. Difference in favor of cable-road, \$50,633.29. The carrying capacity of cars and dummies on the cable road can be increased indefinitely, with comparatively slight increase in the running expenses.

CALIFORNIA. State Government.—The following were the State officers during the year: Governor, George Stoneman, Democrat; Lieutenant-Governor, John Daggett; Secretary of State, T. L. Thompson; Treasurer, D. J. O'ullivan; Comptroller, John P. Dunn; Superintendent of Public Instruction, W. T. Weleker;

Attorney-General, E. C. Marshall; Surveyor-General, H. I. Willey; Railroad Commissioners, G. J. Carpenter, W. P. Humphreys, and W. W. Foote. Supreme Court: Chief-Judge, R. E. Morrison; Associate Justices, W. H. Myrick, E. W. McKinstry, E. M. Ross, J. D. Thornton, J. R. Sharpstein, and S. B. McKee.

Financial.—The report of the State Treasurer for 1885 and 1886 shows the sums paid by the counties to be as follows: 1885, \$3,708,715.48; 1886, \$4,695,651.36.

In 1885 the school fund received \$1,694,863.20; in 1886, \$1,743,731.34. General fund: 1885, \$1,619,741.40; 1886, \$2,545,054.84.

In February, 1886, the State Superintendent apportioned school moneys to the various counties to the amount of \$1,513,086.85 on the basis of 250,097 children.

State University.—In 1885 there were in the colleges at Berkeley 241 students; in affiliated colleges, 280; total, 521.

The Academic Senate, comprising the professors, instructors, lecturers, and assistants of all departments, numbered eighty-nine members. Of this number thirty-two were at Berkeley. The university had real property, funds, and endowments, to the aggregate value of over \$3,000,000, including a State endowment fund of \$811,500; United States endowment, \$492,000; D. O. Mills's endowment, \$75,000; Brayton fund, \$90,155; Reese Library fund, \$50,000; university site and building, \$1,000,000; Lick fund and observatory, \$700,000; Toland property, \$15,000; Hastings endowment, \$100,000.

Irrigation.—Perhaps the most important topic before the people of the State, and the one that has excited the most interest, is irrigation. A convention for considering the subject was held at Riverside in May, 1884, and another at Fresno in December of the same year. On the 26th of April of this year the Supreme Court, in deciding the case of *Lux vs. Haggin*, held by a majority of one that the common law prevails in California respecting riparian rights, the riparian owners along the streams of the State being entitled to the exclusive use of the flowing water. This decision practically renders worthless the land remote from streams in arid

districts, and destroys the value of many miles of irrigating ditches. A State Irrigation Convention convened in San Francisco on the 20th of May and adjourned on the 21st. The results of its deliberations are embodied in the following demands:

Resolved, That it is the sense and determination of this convention:

I. That the cubic foot per second be adopted as the unit of measurement throughout the State.

II. A declaration by the Legislature that all the unnavigable waters of the State, in natural streams and lakes, not rising or wholly included in lands under private ownership, belong to the people thereof, and are subject to appropriation by the people for irrigation, mining, manufacturing, and other useful purposes, and that the customary law of appropriation of water for these purposes as it has grown up in this State should receive the formal sanction of that body as follows:

1. That there is no individual or corporate ownership of water except that which rises upon land under such individual or corporate ownership; this ownership continuing so long only as it remains upon the premises, or so long after it leaves them as they may control it in pipes, ditches, or any other means of conveyance, and apply it to useful, beneficial, and necessary purposes.

2. That the appropriation of water from any public source does not imply individual or corporate ownership, but that it is taken for the time and to the extent only that it is applied to a useful and necessary purpose, after which it is free to other or subsequent appropriators under the same conditions.

3. That the appropriation of water and its conveyance through canals and ditches for sale, rental, or distribution, is a useful, necessary, and beneficial purpose, sale or rental not implying ownership of the element, but just remuneration for the use of the franchise and the plant employed in its conveyance.

III. A system of law providing for the control, management, and just distribution of the waters of the State in accordance with the foregoing principles.

IV. To so extend the law of eminent domain as to allow an irrigation district when formed, corporation or individual, to condemn and pay for rights of way, lands, canals, ditches, and water-claims, and rights of whatever nature, held by any person or corporation, or any other private rights of property, however existing or acquired, or by whatever name designated, which may be necessary for the appropriation or use of water: *Provided*, That in condemning water used at the time of the commencement of an action for the same, a manifestly greater public advantage and use can be shown.

We respectfully submit the accompanying measures, which are proposed for adoption by the Legislature and as a pledge to be required of candidates as hereinafter set forth.

These measures consist: 1. In a proposed constitutional amendment to fix and determine the nature of water-rights; 2. A proposed constitutional amendment to regulate the use of water appropriated for irrigation; 3. A proposed act of the Legislature concerning the right to acquire the use of water by appropriation; 4. The repeal of section 1422 of the Civil Code.

An Executive Committee was appointed to carry out the objects of the convention.

Chinese.—Two Anti-Chinese Conventions met in Sacramento on March 10, and, after fusing, remained in session until the 12th. The following resolutions embody the results of the session:

That we demand that the Government of the United States take immediate steps to prohibit, absolutely, this Chinese invasion.

That to encourage the early removal of the Chinese we accept the suggestion of the Constitution of California, which says that no Chinese shall ever be employed upon any public work of the State, except in punishment for crime.

That the interests of the people of the State of California demand, in harmony with the organic law of the State, that the presence of Chinese should be discouraged in every particular, and that in every instance preference should be given to white labor; and we earnestly appeal to the people to do their utmost to supplant the Chinese with such labor. We are not in favor of any unlawful methods, but, so firmly are we impressed with the great importance of discouraging the employment of the Chinese, that we recommend that they be not patronized in any way, and we are in favor at the earliest moment of boycotting any person who employs Chinamen, directly or indirectly, or who purchases the products of Chinese labor. The date at which the boycott commences in different localities shall in all cases be left to the local leagues.

That a permanent State organization be perfected by this State Convention, to be known as the California Anti-Chinese, Non-Partisan Association.

That an Executive Committee be selected by the chairman of the convention, consisting of three from San Francisco, and one from each other county in the State, who shall be fully empowered to have control of the State work, call State Conventions at such times and places as they may deem proper, and devise ways and means for advancing the cause.

That we recommend that a State organizer be selected by the convention, whose compensation shall be fixed by the Executive Committee.

This convention had been preceded by active measures for driving out the Chinese in many localities.

Political.—The Prohibition State Convention met in Sacramento, on the 18th of May, and nominated the following candidates: For Governor, Col. Joel Russell; Lieutenant-Governor, Judge A. D. Boren; Supreme Judges, Judge William G. Murphy and Judge Robert Thompson; Secretary of State, Frank E. Kellogg; Comptroller, J. A. Fairbanks; State Treasurer, H. S. Graves; Attorney-General, George Babcock; Surveyor-General, George B. Tallman; Superintendent of Public Instruction, Rev. D. A. Mobley; Clerk of the Supreme Court, Julius Lyons. In addition to the prohibition of the manufacture, sale, and importation of all alcoholic beverages, they declared in favor of a Sunday law, and adopted the following:

We are in favor of the largest personal liberty consistent with orderly civil government, and would gladly welcome to our free country all those who come with the intention of enjoying our institutions as they find them; but we demand the exclusion of those whose purpose in coming here is to overthrow our government and destroy our liberties. We demand, further, that the right of franchise be withheld from all foreigners till they shall have lived in this country for a period sufficiently long to enable them to become familiar with our institutions and politics, and to demonstrate their disposition to live in conformity therewith.

The Republican State Convention met in Los Angeles on the 25th of August, and adjourned on the 27th. The following nominations were made: For Governor, John F. Swift, of San Francisco; Lieutenant-Governor, W. R. Waterman, of San Bernardino; Secretary of State, Walter S. Moore, of Los Angeles;

Comptroller, J. E. Denny, of Visalia; Treasurer, Jacob H. Neff, of Placer; Attorney-General, W. H. H. Hart; Surveyor-General, Theodore Reichert, of San Francisco; Superintendent of Public Instruction, Ira G. Hoitt, of San Francisco; Clerk of the Supreme Court, J. A. Orr, of Plumas. Supreme Judges: A. V. R. Patterson, of San Joaquin; T. B. McFarland, of Sacramento; and Judge Hamilton, of Alameda.

The Democratic State Convention met in San Francisco on the 31st of August, and adjourned on the 4th of September. The following were the nominees: For Governor, Washington Bartlett, of San Francisco; Lieutenant-Governor, Michael F. Tarpey, of Alameda; Secretary of State, William C. Hendricks, of Butte; Comptroller, John P. Dunn, of Sacramento; Treasurer, Adam Herold, of Santa Clara; Attorney-General, George A. Johnson, of Santa Rosa; Clerk of the Supreme Court, J. D. Spencer, of Stanislaus; Superintendent of Public Instruction, A. J. Moulder, of San Francisco; Surveyor-General, E. O. Miller, of Tulare; Supreme Judges, Jackson Temple, Jeremiah F. Sullivan, and Byron Waters. The platform endorses the national Administration, opposes contract convict labor, and Chinese immigration; denounces the great railroad corporations of the State for non-compliance with the tax laws, and opposes the amendment to the State Constitution known as the "Heath Amendment," as its adoption would accord with the wishes of the non-taxpaying monopolists of the State. The following are the other important planks:

Resolved, That this convention recommend the passage of an act of Congress, providing for the free coinage of both gold and silver, by the terms of which all gold and silver bullion offered at the several mints of the United States shall be received in exchange for money or gold or silver certificates at the rate now fixed by law for standard dollars of gold, and silver certificates shall be receivable for all public purposes and interchangeable for gold or silver, as the case may be.

Resolved, That the present tariff on wool, prepared by a Republican commission appointed by a Republican President, is an unjust discrimination against a great industry, and we denounce the same, and demand the restoration of the tariff of 1867. That in view of the brilliant future that awaits California in the development of its wine interests, we most heartily favor the bills now pending in Congress for the release from taxation of spirits used in the fortification of sweet wines, and the protection of our wine industries from the injurious effects of fraud and the unrestricted sale of spurious wines.

And we also favor legislation protecting the raisin industry.

We are in favor of liberal wages and free labor.

All associations formed for the purpose of developing the intelligence, promoting the welfare and protecting the interests of the laborer and mechanic, and to enable them successfully to contend for and maintain their rights by peaceful and efficient means against powerful and oppressive combinations, should be encouraged and expressly sanctioned by law.

Resolved, That mining is one of the great and beneficial industries of this State; therefore, it is the duty of the Government to devise some plan to protect that interest and for mining to be continued without injury to any other industry.

Resolved, That the Democratic party recognizes the importance of the water question, and the absolute necessity for its speedy settlement, and the party can and will settle it on a basis of equal and exact justice to all interests involved.

Navigation shall not be impaired under any pretext.

No class of individuals shall take, injure, or destroy the property or rights of any other class, except under the operation of the law of eminent domain. These rights being guarded and protected, the waters of the State are the property of the people of the State, to be used for irrigation, mining, manufacturing, and other useful purposes. Appropriation of water, whether heretofore or hereafter made, should give no right to more water than is absolutely used in an economical manner for a beneficial purpose.

To guard against a monopoly of water for irrigation, irrigation districts should have the right to acquire by purchase or condemnation the means necessary in conducting the water to the lands comprising such irrigation districts. The English law of riparian rights is inapplicable to the circumstances and condition of California.

The State may, at any time, assume control of the diversion, use, and distribution of water under general laws enacted for that purpose, provided the State shall in no event be called upon, by taxation or otherwise, to construct irrigation-works.

C. C. O'Donnell was the anti-Chinese candidate for Governor, and there was also an "American" candidate.

The election on the 2d of November produced a mixed result. According to the latest returns, the Democratic candidate for Governor has a plurality of about 600 over the Republican. The Republicans elected the Lieutenant-Governor, the Attorney-General, the Superintendent of Public Instruction, the Surveyor-General, and two Justices of the Supreme Court. The Democrats elected the Secretary of State, the Comptroller, the Treasurer, the Clerk of the Supreme Court, and one Justice of the Supreme Court. The Republicans elected four Congressmen and the Democrats two. In the State Senate the Democrats have a majority of 12; in the Assembly the Republicans have a majority of 2, leaving the Democrats with a majority of 10 on joint ballot.

Legislative Session.—The Legislature met in extra session, at the call of the Governor, on July 20, and remained in session until Sept. 11. The Governor, in his proclamation, gives the reasons and objects of the call as follow:

The Supreme Court of the State in a recent decision announced that the riparian owners along the unnaviagable streams in California owned the flowing waters in such streams, and are entitled to the exclusive right to use the same. The wide-spread disaster which this decision threatens to the agricultural interests and the consequent general excitement and apprehension make it proper that the legislative and executive branches of the government should take prompt and efficient action to prevent the injurious consequences which will otherwise inevitably flow from the establishment of such a rule of law by the highest court in the Commonwealth.

Another matter of great public concern is the reorganization of the Supreme Court. The existing system has not given satisfaction, and the evils are growing worse. It is cumbersome to a degree. I do hereby beseech the following subjects upon which it is assembled to legislate:

1. To propose and submit to the people of the State

an amendment or amendments to Article XIV of the Constitution of the State relative to water and water-rights.

2. To propose and submit to the people of the State such amendment or amendments to the Constitution of the State as may be necessary or proper to secure to the people the right of appropriation, diversion, and use of flowing water for irrigation or other beneficial purposes, and as may be necessary or proper to protect all such rights in the courts of the State.

3. To enact all laws necessary or proper to protect the people of the State in the full and free enjoyment of the right to appropriate, divert, and use flowing water in the State for irrigation or other beneficial purposes, and so as to fully protect all such rights in the courts.

4. To repeal section 1422 of the Civil Code.

5. To propose and submit to the people of the State an amendment or amendments to Article VI of the Constitution of the State relative to the judicial department, so far as it relates to the Supreme Court.

Notwithstanding the importance of the subjects proposed, the two houses failed to agree on any measure. On March 8, United States Senator John F. Miller, Republican, had died, and on the 23d the Governor had appointed George Hearst, a Democrat, in his place until the assembling of the Legislature. This body, on Aug. 4, elected A. P. Williams, Republican, by a vote of 70, to 24 for Hearst.

Mining.—We give a review of mining operations in the State for the year 1885. California has continued to maintain its place as a producer of gold since the discovery of the metal within its borders. The yield of precious metals for the year was nearly \$10,000,000 in gold and \$4,000,000 in silver. The quartz-mines are especially noteworthy.

New enterprises have been begun, operations have been resumed on several old mines, and in no preceding year since the inauguration of quartz-mining in the State have so few of these establishments been closed.

Calaveras and Amador counties show the greatest activity in quartz-mining. El Dorado County has prosecuted this business with considerable vigor. Nevada County probably is the banner county for quartz-mining; old mines in which their former owners sank fortunes have been reopened, and are now yielding liberally. In Trinity, Shasta, Butte, Sierra, and Plumas counties this industry has already reached large proportions, some of the mills running as high as 60 stamps.

The output of gold has been affected by the closing of the hydraulic mines, but not so seriously as might have been expected.

Drift-mining and river-beds' operations are branches of mining which are only second to quartz-mining at Forest Hill, San Juan, along the Scott, Klamath, and Salmon rivers. They are carried on very successfully, some of the companies employing from 100 to 150 men, and taking out sums varying from \$150,000 to \$400,000 per year.

The owners of gravel claims let out portions of their territory to gangs of Chinamen, and others who work over the surface with under-currents and sluices, and a million dollars is

probably the result of their combined labors for the year.

California is the largest producer of quicksilver in the Union. From 30,000 to 35,000 flasks are produced every year from the mines of New Almaden, Napa Consolidated, Great Western, and Redington. They give employment to 1,000 miners, and about \$4,000,000 is invested in this business.

About 80,000 tons of coal were extracted for the year, principally from Mount Diablo, Ione, and Lincoln.

Copper is also mined in various parts of the State, principally in the southern districts, but owing to depreciation of the price many of the mines have been abandoned, and gold and silver ore containing this rebellious metal can not be worked at a profit.

Wine and Fruit.—Forty million pounds of fresh fruit were shipped out of California by rail between Jan. 1 and Sept. 1, 1885, an increase of 32,000,000 pounds over the shipments for the corresponding period of the previous year. It was said at the State Convention of wine-growers that in 1885 the production of wine in the State was between 15,000,000 and 16,000,000 gallons, and that the requirement for home consumption and export was between 8,000,000 and 9,000,000 gallons. Fully one third of the crop of 1885 was fit only for distillation. In reference to the wine-production of the State in 1875, the total exportation of California wines was 1,031,507 gallons. Five years later the exportation was more than doubled, amounting to 2,487,353 gallons. In 1885, 4,256,224 gallons of wine were exported and 263,840 gallons of brandy.

The vintage of 1886 was the best as well as the largest in the history of California. The yield is estimated at from 17,000,000 to 19,500,000 gallons of wine, of which 3,000,000 will go into brandy. There has been a great increase in acreage of vines, and it is estimated that \$75,000,000 is now invested in the wine interest in California. Equal progress has been made in raisin-culture, and the total product for the year is estimated at 703,000 boxes. It is thought that there are now 8,000,000 fruit-trees in the State. In dried fruit there has been an enormous increase, and all of it has found ready sale. There has been an increase of more than 4,000 per cent. over the product of 1885 in extracted honey.

Riverside, the great orange and raisin growing colony in San Bernardino County, is soon to have the only large cold-storage works for fruit in this country. The establishment will cost \$40,000, and will have capacity for cooling and shipping ten car-loads of fruit daily.

Wool.—The production of California wool has been as follows:

	Pounds.	Pounds.
1880.....	46,074,154	87,415,880
1881.....	45,076,639	36,561,890
1882.....	40,527,119	88,509,160
1883.....	40,848,690	

Wheat, etc.—The Secretary of the State Agri-

cultural Society placed the yield of wheat for the year 1884 at 57,420,188 bushels, or 1,722,605 short tons, produced from an acreage of 3,587.864 acres, averaging 16.40 bushels to the acre, against 32,659,870 bushels, or 979,796 short tons, for the cereal year of 1883-'84.

The crop of the cereal year 1884-'85 has been estimated at 1,250,883 short tons. The acreage of 1886 was about 8,750,000.

The total shipments of wheat by sea from San Francisco in 1886 were 1,100,000 tons; exports of merchandise, \$39,000,000; foreign importations, \$41,941,637; treasure shipment, \$18,713,618. The barley-crop was 39,000,000 bushels, more than three times that of the year before.

Marble.—One of the largest deposits of marble in the world has been discovered in San Bernardino County, three miles from the railroad. It covers six hundred acres, and eleven shades of marble are found. It can be laid down in Los Angeles for \$1 a cubic foot.

CAMEROONS, a German protectorate on the west coast of Africa, extending from the northern boundary of the French possessions in Guinea to the newly proclaimed British protectorate of the Niger country. The German possessions in this part of Africa comprised, in the beginning of 1886, the territories of Togo and Bagid, on the Slave Coast, the district of Bimbia, the island of Nikol, and the coast of Biafra Bay, embracing the territory of the various kinglets on the Cameroons river, and the districts of Malinba, Plantation, and Criby.

About the 1st of April, Capt. Stubenrauch, commanding the imperial gunboat "Cyclop," bombarded and destroyed the village of Money Bimbia, on the southern slope of the Cameroons, the inhabitants of which were under English influence and had become troublesome. Money, the chief, had murdered an uncle of King Bell. Freiherr von Soden, the governor, proceeded to his town in the "Cyclop," and signaled to him to come on board. The chief sent word that the governor must come to him if he wished to speak with him. He was given till the next day to obey the summons, and at the expiration of the time his residence was shelled and the other buildings burned by a landing party. The governor set up another king in the place of Money, who fled.

Herr Schwartz, the African traveler, made an excursion into the interior districts of the Cameroons in January. He followed the caravan route to the Calabar river, and after reaching Bakundu at the limit of previous explorations, advanced eastward into a region of primeval forests, rich in gum-trees and wild coffee, and abounding in elephants, crossed the Kumba river and came to Bason, a picturesque and comparatively well-cultivated country, from which the inhabitants of the coast obtain oil, slaves, and ivory. It is peopled by a tribe called Bafarimi, who are engaged in agriculture and cattle-raising, and have many populous villages. Near the upper Calabar he was stopped

by 500 armed natives, and descended to the coast by Mungo river.

In a note of Lord Rosebery's to the German ambassador in London, dated July 27, 1886, and Count Hatzfeldt's answer of August 2, an arrangement was reached regarding the delimitation of the German and British possessions in West Africa, by which the Germans obtain access to the Benue, which their agent Flegel strove in vain to secure the year before. The German dominion, which by the agreement of May 5, 1885, was bounded by the meridian 9° 8' east of Greenwich and reached only to 5° 30' north latitude on the coast, is extended inland to 9° 40' east longitude, and northward to 8° 20' north of the equator. The coveted interior of the Cameroons region is thus secured to Germany. According to the agreement with France of Dec. 24, 1885, the Congo river as far as 10° east longitude, and a line from that point to parallel 4° of north latitude, mark the limits of the territory of the two nations in this region. By the new arrangements, Germany secures for the Cameroons colony a coast-line of about 400 kilometres, and a depth of nearly 400 kilometres from the mouth of the Rio del Rey to the Benue.

CANADA, DOMINION OF. Cabinet Changes.—The Hon. A. W. McLelan, Minister of Marine and Fisheries, was appointed Minister of Finance in place of Sir Leonard Tilley, who resigned in 1885, and was succeeded by the Hon. G. E. Foster.

Finances.—The revenue for the fiscal year ending June 30, 1885, was \$32,797,001, and the expenditure \$35,037,060. The deficit was due principally to the extra expenditure involved in the suppression of the Northwest rebellion. At the close of the year the war expenses amounted to \$1,697,851. The only previous annual deficits, since confederation, were from 1876 to 1880, inclusive. In 1883 the surplus amounted to \$7,064,492. The following are the per capita statistics for the year, estimating the population at 4,695,864: Gross revenue, \$16.70; gross expenditure, \$16.74; ordinary revenue, \$6.98; ordinary expenditure, \$7.46; gross debt, \$56.87; total assets, \$14.54; net debt, \$41.83; interest paid, \$2.01; interest received, \$0.42; net interest paid, \$1.59. Of the total revenue, 77.39 per cent., or \$25,384,529, was raised by taxation, being \$5.40 per head of the population. Of the amount raised by taxation, \$18,935,428 was in the form of customs duties, and \$6,449,101 excise duties. The net public debt of the Dominion, June 30, 1885, was \$196,407,692, an increase over the previous year of \$14,245,842. The gross debt was \$264,703,607, an increase of \$22,221,191. The interest-bearing assets amounted to \$68,295,915, an increase of \$7,975,350. There has been a total expenditure to June 30, 1885, on Dominion public works, of \$211,542,002. The provincial debts of Canada amount to \$20,762,580, and the interest-bearing assets of the provinces to about \$14,863,422.

Trade and Commerce.—The imports for the year ending June 30, 1885, amounted to \$108,941,486, and the exports to \$89,238,861, a decrease in the former of \$7,455,557, and in the latter of \$2,168,135, as compared with the former year. The foreign trade was distributed as follows:

COUNTRIES.	Imports from.	Exports to.
Great Britain.....	\$41,511,386	\$41,877,745
United States.....	58,095,277	39,752,784
France.....	1,775,172	308,809
Germany.....	2,173,988	264,075
Spain.....	298,314	182,695
Portugal.....	64,603	166,730
Italy.....	116,482	147,550
Holland.....	858,905	24,094
Belgium.....	506,228	72,885
Newfoundland.....	850,398	1,670,968
West Indies.....	8,475,066	2,535,253
South America.....	1,214,904	1,461,206
China and Japan.....	2,557,821	29,918
Australia.....	2,281	415,887
Switzerland.....	221,176	.....
Other countries.....	12,9,635	888,822
Total.....	\$108,941,486	\$89,238,861

Fishery Statistics.—The total value of the catch for the year ending Dec. 31, 1885, was \$17,722,973, being \$48,431 less than in 1884. There was an increase in the value of the cod and lobster catches, and a decrease in the value of the herring and mackerel. These four are, in the order given, the principal produce of the Canadian fisheries. The values were as follow: Cod, \$4,536,731, against \$4,302,454 in 1884; lobsters (preserved), \$2,463,780, against \$2,259,892 in 1884; herring (pickled), \$1,997,901, against \$2,029,430 in 1884; mackerel (pickled), \$1,448,187, against \$1,798,487 in 1884. The export of fish, the produce of Canada, for the year ending June 30, 1885, was \$7,960,001, against \$8,591,654 for 1884. The fisheries gave employment to 59,493 men, 1,177 vessels and steam-tugs, of a total tonnage of 48,728, and 28,472 boats. About \$7,000,000 of capital is invested in the business.

Legislation.—One of the most important acts of the session of the Dominion Parliament in 1886 was the Northwest Territories Representation Act. The act makes the provisional districts of Saskatchewan and Alberta electoral districts, returning one member each to the Canadian House of Commons, and divides the provisional district of Assiniboia into two electoral districts, each returning one member. To render this act valid, the Imperial Parliament passed the British North America Act, 1886, authorizing the Parliament of Canada, from time to time, to make provision for the representation in the Senate and House of Commons of Canada, or in either of them, of any Territories that for the time being form part of the Dominion but are not included in any province thereof. The act is made retroactive, so as to sanction the act passed by the Canadian Parliament. There are now three British North America Acts of the Imperial Parliament—i. e., of 1867, 1871, and 1886. By the Dominion Act the electoral franchise in the Northwest

territories is conferred upon every *bona-fide* male resident and householder, of adult age, who is not an alien or an Indian, and who has resided in the electoral district twelve months before the issue of the writ of election. Voting is to be open, not, as in the provinces, by ballot. Voters may be required to swear, not only as to their identity qualifications or disqualifications, but also that they have not been bribed.

Mr. Charlton's bill, to punish seduction and like offenses, and to make further provision for the protection of women and girls, passed in previous sessions by the House of Commons, but thrown out by the Senate, became a law this year. The act makes it a misdemeanor, punishable by two years' imprisonment in a penitentiary, or for a less term in any other place of confinement, to commit any of the following offenses: To seduce or attempt to seduce any girl, of previously chaste character, between the ages of twelve and sixteen years. To have or to attempt to have carnal knowledge of any female idiot or imbecile woman or girl, under circumstances that do not amount to rape. To procure or assist in procuring a feigned marriage. Being over twenty-one years of age, to seduce under promise of marriage any unmarried female of previously chaste character under eighteen years of age. Having the control of any premises, to induce or knowingly suffer any girl between the ages of twelve and sixteen years to be upon such premises for the purpose of being unlawfully known by any man. If such girl is under the age of twelve years, the owner of the house is guilty of felony, and liable to ten years' imprisonment. It is a sufficient defense to this section to show that the accused had reasonable cause to believe the girl to be above the age of sixteen years. No person can be convicted of any offense under the act upon the evidence of one witness, unless that witness is corroborated in some material particular by evidence implicating the accused. A defendant is a competent witness in his own behalf upon any charge under the act; and no prosecution can be begun after the expiration of one year from the time of committing the offense.

Politics.—The government of Sir John Macdonald met Parliament this session amid the greatest uncertainty as to its fate. By the defection of a large but then uncertain number of the Quebec Bleus (hitherto the stanchest section of the Conservative party), on account of the execution of Louis Riel, Sir John's great majority had been seriously impaired; but upon a vote of censure with reference to the execution it was mere matter for speculation to what extent the votes of the bolters would be set off by the support of English Liberals. On March 25, at 2.30 A. M., after a long and exciting debate, a vote was taken on Mr. Landry's motion:

That this House feels it its duty to express its deep regret that the sentence of death passed upon Louis

Riel, convicted of high treason, was allowed to be carried into execution.

The vote in support of the Government was: English Conservatives, 97; French Conservatives, 25; English Liberals, 24; total, 146. The vote against the Government was: English Liberals, 24; French Liberals, 11; French Conservatives, 17; total, 52. Thus the Government obtained an unexpected majority.

On motion to go into Committee of Supply, made June 2, an amendment was moved "that in the administration of Northwest affairs under the present ministry prior to the rebellion, there were grave instances of neglect, delay, mismanagement, and misconduct, which were prejudicial to the public welfare, produced serious discontent among the people, and retarded the development of the country." This amendment was negative by a vote of 71 against 51, and the Government was thus sustained, not only upon its policy in regard to the execution of Riel, but also upon its administration of the Northwest Territories in regard to which it was generally considered throughout the country to be much more vulnerable. Although supported in Parliament, the Government found little encouragement to appeal to the country. At a by-election in the county of Haldimand, Ont., an English constituency, the cry of "French domination!" was raised in the interests of the Government candidate; but he was defeated, and Cabinet ministers had entered so energetically into the electoral campaign that, although the county has always been Liberal, the defeat was regarded as a severe blow for the Government. The chief significance of the result was, that the cry of "French domination!" was not likely to prove as effective in Ontario as the Riel cry in Quebec. The Hon. Mr. Chapleau, Secretary of State, caused the constituency of Chambly, in the province of Quebec, to be opened, for the avowed purpose of destroying the prestige of the Parti National by demonstrating that the Riel cry could not carry a Quebec county. But the Riel candidate was victorious. In the provincial general elections in Nova Scotia and Quebec the Liberals were also triumphant.

The Fisheries.—As related in the "Annual Cyclopædia" for 1885, the fishery clauses of the treaty of 1872 between the United States and Great Britain expired on June 30, 1885, and the perplexing treaty of 1818 was thereby revived. Fish imported into the United States from Canada immediately became subject to import duties; but the Dominion Government, with the hope of preventing unpleasantness, agreed not to enforce the restrictions of the revived treaty against United States fishermen until Congress had had an opportunity of authorizing new arrangements. Congress having declined to agree to either a new treaty or the appointment of an International Commission, the Dominion Government made preparations to enforce, from the beginning of the season of 1886, the restrictions of the treaty of 1818.

A fleet of swift, armed cruisers was fitted out to patrol the fisheries. Not only the provisions of the treaty, but the customs regulations, hitherto very leniently interpreted, were now rigorously enforced. American fishing-vessels were forbidden to enter Canadian waters for any other purposes than the four specified in the treaty of 1818. The instructions to the commanders of the cruisers were secret; but the powers granted them were much more extensive than those intrusted to the collectors of customs. The captains were authorized to make seizures at their own discretion, of course within the limits of their private instructions. The collectors were instructed to detain suspected vessels for twenty-four hours, and report each case to the Government at Ottawa for further action. This distinction, necessitated from the fact that the collectors were not appointed to deal with the delicate questions likely to arise, and that, in fact, not all of them were qualified to do so, gave rise to a wrong impression. A circular, issued to the collectors on June 11, was for some time generally considered a modification of the Canadian Government's claims. It was assumed that American fishing-vessels might remain in Canadian ports for twenty-four hours without molestation. Such, however, was not the intention of the Government, which simply instructed collectors to seize any American fishing-vessels remaining in port twenty-four hours after being warned to depart, although they might not have broken any law otherwise than by hovering within the three-mile limit. It was never intended to concede any privilege not included in the treaty. The treaty allows American fishing-vessels to obtain wood in Canadian ports; the Government allows coal to be shipped as a substitute, if intended for cooking, but not if intended to supply motive power; because, it is argued, at the time the treaty was made coal was not used as a motive power.

Much indignation was created in the United States by the refusal of the Canadian officials to recognize the permits granted to American fishing-vessels by American customs collectors to "touch and trade" at Canadian ports. The action of the Canadian officials was supposed to be in contravention of legislation passed subsequent to the treaty. But a broad distinction is insisted upon by the Canadian Government between fishing-vessels and trading-vessels—a distinction that has always been recognized at the custom-house. An American merchant-vessel in a Canadian port is only expected to comply with the customs regulations. An American fishing-vessel is further expected to comply with the requirements of the treaty of 1818.

On May 7, the schooner "David J. Adams," of Gloucester, Mass., was seized in Digby Basin, N. S., by Capt. Scott, of the Dominion cruiser "Lansdowne." The schooner was accused of violating the customs regulations by remain-

ing twenty-four hours, or more, in port without reporting to the collector of customs, and of violating the act relating to fishing by foreign vessels by buying bait. The seizure was formally protested against by the master of the schooner, and also by United States Consul-General Phelan. An action was entered against Capt. Scott for \$12,000 damages; and another was brought against Henny, master of the "David J. Adams," for \$1,000 penalty for violating an imperial statute of 1818. In the latter case no defense was offered, and judgment was entered against the defendant for the full amount. The trial of the "David J. Adams" case was arranged to be held at Halifax.

Subsequently, the "Ella M. Doughty" was seized at Englishtown, Cape Breton, for buying bait at St. Ann's. The plea filed for the defense in this case set up that the purchase of bait or ice is not prohibited by any imperial or Canadian statute or order in Council; that the imperial statute of 1819 being still in force, all Canadian legislation on the same subject is null and void; that since the treaty of 1818 and the imperial statute of 1819 were admitted to be in force, further privileges have been conceded to United States vessels; that the "Ella M. Doughty" was under United States law licensed to touch and trade at foreign ports; that the vessel entered St. Ann's for shelter, and not for bait, but the captain purchased bait that was offered him, intending to use it solely beyond Canadian limits; that the vessel neither fished, took fish, dried fish, cured fish, nor prepared to fish within three marine miles of any Canadian coast or bay; that the port of St. Ann's is a commercial port of Canada into which vessels may enter and depart from, subject only to the customs regulations; and that so much of the treaty of 1818 as provides that fishermen shall be permitted to enter bays and harbors for the purposes therein set forth, has relation to bays and harbors generally; but that with reference to St. Ann's and all other harbors constituted commercial ports, there did not exist, either in the laws of Great Britain or Canada, or in any treaty or convention, any prohibition against the entry into such ports, in time of peace, of any vessel whatsoever belonging to a friendly nation, for the purpose of obtaining necessary or reasonable supplies for their reasonable voyages and occupations; that pursuant to a royal proclamation of Nov. 6, 1830, United States vessels were authorized to export freely goods from Canada to any foreign country, and that by subsequent legislation of the Imperial Parliament all registered and licensed vessels of the United States, as to voyages from and to British ports, and as to trading at such ports as incidental to such voyages, were made subject to the same prohibitions and restrictions, and none other, to which British vessels similarly engaged were then subject; so that the "Ella M. Doughty" was fully authorized to purchase bait.

On July 2, the schooner "City Point," of Portland, Me., put into Shelburne, N. S., the captain claims, for the purpose of getting her decks calked; the Canadian authorities allege that it was to obtain a prearranged supply of bait. Two men were landed, and water was taken on board, before the vessel reported at the custom-house. The vessel was detained by the collector of customs, and then upon instructions from the Dominion Government was seized for violating the customs laws, by the cruiser "Terror." Two other Portland schooners—the "C. B. Harrington" and George W. Cushing"—were also seized at Shelburne. All three were subsequently released upon deposit of fines of \$400 each by Consul-General Phelan, the deposit being made upon condition that the amount be returned in case the seizures should be declared illegal.

On Aug. 18, the mackerel-schooner "Howard Holbrook," of Gloucester, Mass., was seized at Port Hawkesbury, C. B., by the collector of customs, for having violated the customs laws three weeks previously by calling at the same port without reporting at the custom-house. The vessel was released on payment of \$200.

The first vessel seized for fishing within the three-mile limit was the "Highland Light," which was seized on Sept. 1 by the cruiser "Howlett" while in the act of fishing within a mile and a half of the shore, near East Point, P. E. I. Among other vessels seized for not reporting at custom-house were the "Pearl Nelson," of Provincetown; the "Marion Grimes," of Gloucester; and the "Everett Steele," of Gloucester. The latter was seized by the cruiser "Terror" in September, for having put into Shelburne in March without reporting. Fines of \$400 were imposed in each instance.

It is not easy to determine whether the United States or Canada suffered the more by the revival of the Washington Treaty. In spite of the duties, the Canadian fishermen exported large quantities of fish to the United States, at unusually high prices. American fishermen suffered less from being excluded from the Canadian fishing-grounds than from being denied facilities for obtaining supplies and forwarding fish by rail. The greatest sufferers were the numerous Canadians, who in the past have lived by selling supplies to the American fishermen. Considerable excitement was created among the classes directly interested on both sides of the frontier. The New England fishermen seemed to regard every seizure, not as a matter of police, but as an act of war. The United States Government, while strongly favoring a new treaty or the appointment of an international convention, took exception to the Canadian Government's method of enforcing its interpretation of the existing treaty. The United States Government insisted that the British headlands doctrine is false and untenable; that seizures ought not to be made on suspicion, but only if

a vessel is actually engaged in fishing within the limits; that under the treaty of 1818 American fishermen have the privilege of going into Canadian ports without vexatious custom-house formalities, which privilege is distinct from the general right of American vessels to trade in open Canadian ports under the usual custom-house restrictions; that custom-house regulations must be enforced in a friendly, not in a hostile, spirit; and that excessive fines must not be imposed. Congress passed an amendment to a shipping bill then being discussed, which authorized the President to issue a proclamation at any time, denying commercial privileges in American ports to the vessels of any foreign country denying commercial privileges in its ports to American vessels. In August three sealing-vessels belonging to Victoria, B. C., were seized in Bering Sea by the United States revenue cutter "Corwin." The question involved in this seizure is that of the territorial rights of the United States in Bering Sea, the vessels having been seized while within sixty miles of Alaska.

The Dominion Parliament passed the following amendment to the act respecting fishing by foreign vessels in Canadian waters:

Any one of the officers or persons hereinbefore mentioned may bring any ship, vessel, or boat, being within any harbor in Canada, or hovering in British waters within three marine miles of any of the coasts, bays, creeks, or harbors in Canada, into port and search her cargo, and may also examine the master upon oath touching the cargo and voyage; and if the master or person in command does not truly answer the questions put to him, in such examinations, he shall incur a penalty of \$400. And if such ship, vessel, or boat is foreign, or not navigated according to the laws of the United Kingdom or of Canada, and (a) has been found fishing or preparing to fish, or to have been fishing, in British waters within three marine miles of any of the coasts, bays, creeks, or harbors of Canada, included within the above-mentioned limits, without a license, or after the expiration of the term named in the last license granted to such ship, vessel, or boat, under the first section of this act; or (b) has entered such waters for any purpose not permitted by the law of nations, or by treaty or by convention or by any law of the United Kingdom or of Canada, for the time being in force, such ship, vessel, or boat, and the tackle, rigging, apparel, furniture, stores, and cargo thereof shall be forfeited.

CAPE OF GOOD HOPE, a British colony in South Africa. The legislative authority is vested in a House of Assembly, consisting of seventy-four members, elected by limited suffrage for five years. The Governor is Sir Hercules G. R. Robinson, who is also High Commissioner for South Africa. The Premier is Sir Gordon Sprigg.

Area and Population.—The area of Cape Colony proper is 199,406 square miles; the population is about 895,000, comprising 315,000 persons of European origin, of whom 140,000 are of English and 175,000 of Dutch and French Huguenot descent, and 580,000 natives of different tribes. The annexed district of Griqualand West has an area of 17,800 square miles, 16,927 white inhabitants, and 32,174 others. Other districts under the administration of the Cape

Government are a part of the Transkei, 14,230 square miles in extent, with a native population of 84,115 souls; Griqualand East, with 78,352 native inhabitants; and Tembuland, with 98,530. Basutoland, with an area of 10,293 square miles, and 127,707 indigenous inhabitants, and 469 resident whites, is now administered by a resident commissioner under the direction of the High Commissioner of South Africa. Including Basutoland the population of Cape Colony and its dependencies numbers 287,121 Europeans and 962,603 others.

Commerce.—The declared value of the exports in 1884 was £3,938,981. The exports of gold and diamonds, not included in this sum, bring the total value of the exports up to £6,945,674. The imports, which two years before amounted to £9,372,019, were in 1884 £5,249,000. The value of diamonds exported in the regular way in 1884 was £2,807,329, making the total product of the mines since 1867, £29,772,576. The export of wool fell off from £2,062,180 in 1882 to £1,745,193 in 1884; of ostrich-feathers, from £1,093,989 to £966,479; of Angora hair, from £253,128 to £239,573. The export of hides and skins increased from £403,357 to £438,365; of copperore, from £394,032 to £405,415; of wine, from £11,658 to £17,701.

Agriculture and Industry.—Cape Colony has passed through a period of depression since 1878, owing partly to the colonial wars waged against the Galekas and Basutos; partly to the expulsion of natives from lands which they tilled, by the Cape Dutch, who converted the land into pasture, and the consequent extinction of native markets; partly to over-speculation in the production of diamonds, Angora hair, and ostrich-feathers, and the fall in the prices of those articles and of wool. The diamond industry, the most important one in the country, is believed to have reached a point where the cost of production is nearly equal to the value of the product. It has been very beneficial in teaching the natives to work for wages, and will give employment to a large population for at least a hundred years. The new gold industry is capable of indefinite expansion. Besides the rich quartz-ledges in the Transvaal, the exploitation of which has only begun, there have been promising discoveries in Tongaland, and far in the interior, in northern Bechuanaland, near the Zambesi; and in other regions farther north there are areas where alluvial gold has long been known to exist. The copper-mines of Namaqualand, worked by an English company, is an important industry. Coal exists in large quantities in the colony, but the mines are not developed. The agricultural development of South Africa has not yet begun, though the soil in many places is well adapted to the growth of crops. The Dutch farmers, who have held nearly all the land hitherto, are exclusively pastoral. They raise large quantities of wool, but, owing to careless breeding and shepherding, the prac-

tie of shearing twice in the year, and that of mixing fleeces of different qualities and colors in the same bale, the prices are much lower than are obtained by Australian wool-growers. The Cape wool has deteriorated in quality, and the production per acre has decreased, because the wars and the newly-developed industries have diverted the attention of farmers to other occupations, especially the profitable carrying business. The land is capable of feeding a sheep to the acre, instead of one to four acres, as at present. The farmers have begun to fence their lands, and some of them to irrigate by means of wells and windmills. Irrigation is necessary for grain-crops. Of the 200,000 square miles of territory in the colony, not over 850 are under cultivation. A large part of the farms are heavily mortgaged to English and German money-lenders. The Dutch farmers will, therefore, probably be compelled to devote themselves more to agriculture, or make way for other occupants. Grapes constitute one of the chief crops at present. There are 15,000 acres in vineyards. The vine flourishes exceedingly, and some of the vine-growers produce excellent wine at a cost of less than twenty cents a gallon; but most of the wine and brandy is of such poor condition that there is no demand for them abroad, and only at the Cape on account of the prohibitive tariff.

Railroads and Telegraphs.—In September, 1885, the Government railroads had a total length of 1,523 miles; their capital cost was £13,229,218; their gross earnings in 1884 were £964,903; their net earnings, £327,462.

The telegraph lines at the close of 1884 had a total length of 4,219 miles. The number of messages in 1884 was 740,791.

Finances.—The revenue receipts in 1884-'85 amounted to £3,321,958. The estimated expenditure was £3,502,601. Owing to the falling off of the revenue, during a period of depression, the Government has been compelled to resort to retrenchments in the expenditures. A bill abolishing excise duties, passed in June, reduces the revenue by £100,000. The colony had a debt, in 1885, of £20,804,000.

Gold - Fields.—The gold-mining industry in South Africa has sprung up within two years, having received its first impetus from the discovery of rich fields in the Eastern Transvaal and the adjoining native territories. In the early fall new discoveries in the De Kaap and Witwatersrand districts attracted streams of diggers from all parts of South Africa. The population of Barberton quickly doubled. There was a total capital invested by mining companies in South Africa of about \$10,000,000, while the shares were worth double that amount in the market. Some of the companies engaged in quartz-mining possessed the necessary machinery, and were making large profits, while many others had not begun to develop their properties. The Sheba Reef Company, which has obtained 7 ounces, 6 pennyweights, 9 grains from every ton of quartz,

after the first six months' operations reported a gross profit of £20,031, with £3,175 of total expenses, giving a net profit exceeding the paid-up capital of £15,000. In this mine the auriferous rock is simply quarried. The Witwatersrand field lies between Pretoria and Heidelberg, in the Transvaal. Many mining claims in this district have been secured by Kimberley capitalists. On one farm four consecutive conglomerate gold-bearing reefs of an average thickness of 23 feet, and 3½ miles in length, have been discovered 100 feet below the surface. Many other reefs have been found in the neighborhood. The yield here is about 1 ounce per ton, paying between four and five times the cost of extraction. The auriferous formation in the Transvaal runs entirely across the country, almost along the parallel of 26° south, from the Limbobo mountains in the east to the border of British Bechuanaland in the west. A valuable reef has been found on the Malmani river, 14 miles from Mafeking. Gold-bearing quartz-veins exist in the Knysna, within the Cape Colony, but it has not been determined whether they are rich enough to pay for working. Experiments with quartz found in the Zulu Reserve did not prove altogether satisfactory.

Bechuanaland.—The protectorate of Bechuanaland was proclaimed on Jan. 27, 1885. The area, including the new district of Stellaland, is about 180,000 square miles, the population 478,000. The Imperial Government proposed to hand over the administration to the Cape Government, but the latter, in July, 1885, insisted that the cost of the mounted police should be borne by the Imperial Government, which, therefore, undertook the administration. A constabulary of 500 men was organized. The cost of the annexation was about £1,000,000. For the first year's civil administration the British Parliament voted £75,000, besides the sum required for the subsequently annexed district of Stellaland, which was first organized as a republic, and then taken into the British protectorate, on the condition that land-titles acquired from the natives should be respected. A land commission was appointed on Oct. 1, 1885, with S. G. A. Shippard, who was also appointed political administrator, as chief commissioner. The Government prohibited sales of liquor to the natives; yet they obtained it surreptitiously from the traders at Vryburg, in Stellaland, in such quantities that drunkenness began to prevail among the chiefs and people, except in the territories of the Chief Montsioa, who was able to control his subjects. While the land courts were sitting, in January, 1886, Mr. Shippard issued a proclamation declaring that meetings held to influence their decision would be punished as contempt of court. The inhabitants of Rood Grond were incensed at the decisions of the land court, which denied their claims to farms in Moshette's territory.

Upingtonia.—A new republic, called Upington-

nia, was established about the 1st of January in Ovamboland, north of Damaraland. The right to the territory was purchased from the native tribes, and land was offered to European settlers free of charge. The district, 300 miles long and 120 miles broad, is situated 200 miles from Walvisch Bay. Many Boers and Englishmen moved in and began the cultivation of the land, which is adapted for the growth of wool, grain, and wine. The settlers, who took possession in order to forestall German occupation, requested to be taken under the rule of the Cape Government.

Pondoland.—The Xesibe country, a part of the tribal territory of the Pondo, was, in September, 1886, annexed to Cape Colony without the consent of the Pondo. The port of St. John's river was also annexed. The Xesibes, feeling secure under colonial protection, began to make raids into Pondoland. The Pondo, who have always lived heretofore on friendly terms with the British, had done all that they could to secure peace, sending a deputation, in 1885, to the High Commissioner. The British authorities endeavored to obtain from the Pondo a trade and military route through their territory, and opened negotiations in January, 1886, with the paramount chief, Umquikela. They obtained a cession from one of the chiefs, but Umquikela refused to recognize its validity, and rejected an offer to buy the right of way through his dominions. But as the party in power at the Cape was desirous of annexation, nothing was done to prevent the troubles, which resulted in the annexation of Xesibeland, after an incursion of Pondo in retaliation for cattle-thiefs.

Zululand.—When Cetewayo, who, after the Zulu war, had been at first imprisoned at Cape Town, and then brought to London, where he became a popular character, was restored to his kingdom, the fertile region next to Natal was reserved for discontented Zulus, who preferred to live under British administration to coming under the rule of their old monarch. The northeast corner of Zululand was ruled by Usibepu, a powerful chief, who refused to acknowledge Cetewayo, and was therefore left independent in the arrangement for Cetewayo's return. In a short time Usibepu and the dispossessed chiefs drove out Cetewayo, who died a fugitive in the Reserve, poisoned by his enemies, as has been since ascertained. Usibepu then attempted to make himself master of the whole country, and to resist him the Usutus called the Boers to their aid. In return for helping the Usutus overthrow Usibepu, the Boer volunteers from the Transvaal obtained from Cetewayo's son, Dinizulu, who was crowned King of the Zulu nation, a grant of 2,600,000 acres of land. They founded the Republic of Western Zululand in October, 1885, and laid claim to St. Lucia Bay, where they proceeded to settle; but this latter action provoked the interference of the British authorities. By January, 1886, the Boers in Zululand had appor-

tioned out 800 farms of 3,600 acres each, situate partly in Western Zululand and partly in the district along the coast skirting St. Lucia Bay, over which the new republic had proclaimed sovereign rights. The quantity of land ceded by Dinizulu to the Boers was nearly five sixths of Zululand outside of the British Reserve, and, according to English computations, left not land enough to support one third of the Zulus. The British authorities warned Lucas Meyer, the President, and the other citizens of the Boer Republic, that they would not recognize the survey nor the occupation of the lands as conferring a valid title, or as affecting the British or the Zulu rights previously existing; also that they would not permit the occupation of St. Lucia Bay, or of the adjacent territory to the north and west of the bay. In April, 1886, Earl Granville offered to the Boers a settlement, recognizing their rights to a part of the land then occupied, but the Boers rejected the terms offered. In the mean time they began to settle in the neighborhood of the sea-coast, near St. Lucia Bay, which port was desired by the Transvaal people as a terminus for a railroad. The British Government had sought to defeat the railroad project by proclaiming a protectorate over the coast at that point. The Boers, in the allotment of farms, respected the British protectorate by leaving to the British the sandy strip of shore-lands. Some of the natives displaced by them were driven into the Reserve. The Natal colonists who, while they are unable to utilize new lands, are eager to annex fertile districts for the future expansion of the colony, and because they can draw a revenue from them by imposing a hut-tax on the native occupants, proposed by a vote of their Legislative Council to have Zululand annexed to Natal, although they have repeatedly refused responsible government on the plea that they can not assume the risks and the expense of managing their present native population, and of guarding their frontier.

The portion of Zululand that the British Government offered to relinquish to the Boers in the negotiations of March and April comprised the territory of the new republic that was first settled before its extension toward the sea. In September Sir Arthur Havelock, Governor of Natal, reopened negotiations, on behalf of the Imperial Government, with the Boers of the Zululand Republic. The latter claimed 800 farms under title-deeds already granted, and the suzerainty over the whole of Zululand, except the Reserve. They were willing to abandon the rights of suzerainty, subject to the consent of the Zulus, but would not agree to give up 250 of their farms also, as the Governor demanded.

An agreement was signed, by Sir Arthur Havelock and the Boer representatives, on Oct. 22. The Republic of Western Zululand was recognized by the British Government. The Boer protectorate over the country was abol-

ished, and a British protectorate established over the entire coast. Eastern Zululand was reserved for the Zulus, with a British protectorate, if they desired. A part of Central Zululand is included in the district assigned to the Zulus, who also retain Ulundi; but the most valuable portions go to the Boers, whose boundary extends to within 40 miles of the sea. The roads are free, and missionaries will be at liberty to go everywhere. In return for their claims near the sea-shore, the Boers received the valuable district of Umgungane, to the north of their republic, in which there were few natives, and another rich district, already fully occupied by the Boers, on the southeast. The people of Natal objected to the settlement, and the Legislative Council of the colony, in order to bring pressure on the Governor, voted against financial and other Government proposals, and even reduced the Governor's salary. They desired the annexation to Natal of the Reserve and Eastern Zululand, if not of the new republic, and insisted on a free-trade route through Zululand.

CHEMISTRY. Chemical Philosophy.—The most valuable contribution to the subject of chemical philosophy during the year was Prof. William Crookes's inaugural address as President of the Chemical Section of the British Association on the nature and possible origin of the chemical elements. Of the attempts, he said, hitherto made to define or explain an element, none satisfy the mind. Such definitions as those given in the text-books, that an element is a body which has not been decomposed, or a something to which we can add, but from which we can take nothing away, are doubly unsatisfactory. They are provisional, and may cease to-morrow to be applicable to any given case. They are based not on any attribute of the thing to be defined, but on the limitations of human power. The idea that the elements are capable of further decomposition is not new in chemistry, but has been broached by Faraday, Herbert Spencer, and others. Mr. Lockyer has shown that in the heavenly bodies of the highest temperature, a number of our reputed elements are dissociated, or have never been formed. Prof. Stokes suggests that a certain line in the spectrum of the nebulae may indicate some form of matter more elementary than any we know. It is important to keep in mind the idea of the genesis of the elements; and still more important to keep in view the probability that there exist in Nature laboratories where atoms are formed, and laboratories where atoms cease to be. Are the distinctive properties of our elements accidental or determinate? Why might there not as well have been 7 or 700, or 7,000 absolutely distinct elements as the 70 (in round numbers) which we recognize? If the peculiarities of the elements were accidental, they could hardly display the mutual relations which are brought out in the periodical classification. May they not have been evolved from some few antecedent

forms of matter, or possibly from one such, as it is now held that the variations of animals and plants have been developed from fewer and earlier forms of organic life? It must be admitted that we have no direct evidence of the transmutation of any supposed element into another, or of its resolution into anything simpler. But there is indirect evidence bearing on the point. Herschel and Clerk-Maxwell have concluded that atoms bear the impress of manufactured articles. Prout's hypothesis that the atomic weights of the other elements are multiples of that of hydrogen, has not been borne out by the more accurate determinations of them, but coincidences which should not be disregarded are presented in those determinations. The discrepancies may possibly be reconciled if we supposed the unit of atomic weight to be possessed not by hydrogen, but by some body as yet not found, whose atomic weight is less than that of hydrogen. Such a body may be the hypothetical element *helium*, whose lines are revealed in the spectrum of the sun.

Other evidence on this point is furnished by certain peculiarities in the occurrence of the elements in the earth's crust. Many of them are found in groups of associated members having peculiarities that indicate common affinities; as in the case of nickel and cobalt, the two groups of platinum metals; and the so-called "rare earths" which occur in gadolinite, samarskite, etc. Some of the peculiar features of the rare earths, yttria, samaria, holmia, erbia, etc., seem to point to their formation generally from some common material placed in each case in conditions nearly identical. The compound radicals, with their analogy with accepted elements, also throw light on this view.

Dr. E. J. Mills has suggested that our present elements are the results of successive polymerizations which have taken place in the process of the cooling of matter from its pristine intensely heated condition. Measuring the natural increase in density of chemical substances in cooling as a function of time or of temperature, we may sometimes observe that there are critical points corresponding to the formation of new and well-defined substances, as when phosphorus is converted into the red variety. We might then account for the formation of the elements, by conceiving the original existence of matter in an ultra-gaseous state that may be called *protyle*, at a temperature inconceivably hotter than any now known, and even above the dissociation-point of atoms. In course of time the temperature of protyle is reduced to a point at which granulation takes place; matter, as we know it comes into existence, and atoms are formed with their potentialities of energy, including that of atomic weight. Acting on the neighboring protyle, they accelerate the formation of other atoms. We need not suppose that all the elements were simultaneously created; but that the

easiest formed one, the one most nearly allied to *protoyle* in simplicity, came into being first. This would be hydrogen, or helium, or the element having the simplest structure and the lowest atomic weight. Between this and the formation of the next element in order of simplicity would be a considerable gap in time, during which its atomic weight, affinities, and chemical position would be in course of determination. The longer the period occupied by the condensing of the *protoyle* into new atoms, the more sharply defined would be the resulting elements; and, with more irregularity in the cooling, we should have a nearer approach to the state of the elemental family as we now know it.

Prof. Thomas Carnelly, in a paper on the physical properties of the normal halogen and alkyl compounds of the hydrocarbon radicals, points out numerous relationships, which, with one exception, are similar to those which he has shown to exist between the normal halogen or the alkyl compounds of the elements. It appears that the physical properties of the following four classes of compounds obey the same rules: 1. The halogen compounds of the elements—that is, of elements with elements; 2. The alkyl compounds of the elements; 3. The halogen compounds of the hydrocarbon radicals; 4. The alkyl compounds of the hydrocarbon radicals—that is, of hydrocarbon radicals with hydrocarbon radicals. A careful consideration of these points leads almost irresistibly to the conclusion that the elements are analogous to the hydrocarbon radicals in form and function; and this, if true, will lead us to infer that the elements are not elements in the strict sense of the term, but are built up of (at least) two primary elements, A (= carbon at. wt. 12), and B (= ether at. wt. —2), which by their combination produce a series of compounds (viz., our present elements), which are analogous to the hydrocarbon radicals. If this theory of the constitution of the elements be true, the periodic law would follow as a matter of course, and we should therefore be able to represent the elements by some such general formula as $A_n B_{2n} + (2 - x)$, analogous to that for the hydrocarbon radicals, $C_n H_{2n} + (2 - x)$, in which n = the series and x the group to which the element or hydrocarbon radical belongs.

Prof. Ramsey, in a recent paper on the subject, has affirmed the non-existence of nitrogen trioxide. After pointing out the inconclusive character of Lunge's argument in support of the existence of this substance in gaseous form, inasmuch as the use of any reagent may either decompose the gas or react with the products of its dissociation—viz., N and N_2N_4 (N_2) as though they consisted of N_2O_3 itself—the author showed the only criterion of the existence of the gas to be its vapor-density. The results of experiments made to determine this point were regarded by him as deciding the question against the existence of gaseous nitrous trioxide.

Chemical Physics.—The tabulated results of Raoult's experiments on the action of dissolved substances in lowering the freezing-point of solutions show that different salts of the same group—i. e., containing the same number of metal atoms in the molecule—show nearly the same molecular depression of the freezing-point. The value of the molecular depression produced by any salt is obtained by multiplying the lowering of the freezing-point of a solution containing one gramme in 100cc. of water by the molecular weight. The salts experimented upon are classified into two series: 1, according to the value of the metallic constituents, and 2, according to the value of the negative or metalloid substance. The first group of the first series, consisting of salts containing only one atom of the monad metal, gives values for the molecular depression varying from 27 to 36. The second group, the salts of which contain two atoms of monad metal, gives the value 40. In the third group, in which three monad-metal atoms are combined in the molecule, the value is 48; in the fourth it is 47, and in the fifth 48. The second series contains the salts of the dyad metals, and the molecular depression does not exceed 53, the values being from 41 to 48 for the salts of monobasic and 18 to 22 for those of dibasic acids. Comparing the two series, it appears that, whenever in a molecule of a salt dissolved in 100cc. of water one atom of alkali-earth or earth-dyad metal is replaced by an equivalent quantity of a monad metal, the lowering of the freezing-point increases by a nearly constant quantity, viz., about 21. Referring the matter to equivalents, the author states his results: If, in the solution of an alkali-salt containing an equivalent of the salt in 100cc. of water, the monad metal be replaced by an equivalent quantity of a dyad or polyad metal, the depression of the freezing-point is diminished by a quantity sensibly constant and equal to 10.5. With regard to acids, the law is that if in the solution of a salt of a strong monobasic acid containing one equivalent of the acid in 100cc. of water the monobasic acid be replaced by an equivalent quantity of a strong dibasic acid, a diminution of the depression of the freezing-point is observed, which is nearly constant, and approaches 14. From these data the author calculates the depression due to the separate radicals.

Experiments by Prof. W. A. Tilden on the phenomena of solution of sodium sulphate at different temperatures establish the fact that the thermal change in dissolving the anhydrous salt in water at temperatures above 33° C. is still positive, although a diminishing quantity, and hence that the act of solution is still attended, at these temperatures, by chemical combination between the salt and the water.

W. Spring, in the course of experiments in applying pressure, rising in some cases to 10,000 atmospheres, obtained from filings of those

respective metals, blocks of lead, bismuth, tin, zinc, aluminium, copper, antimony, and platinum, that seemed to have all the properties of homogeneous metals. Lead, under a pressure of 5,000 atmospheres, no longer resisted the piston of the apparatus, but behaved as a liquid would have done under similar circumstances; and, when the apparatus was opened, thin coatings of the metal were found everywhere, having the appearance of those obtained by plating. Prismatic or amorphous sulphur was converted into an opaque block of rhombic sulphur, harder than that obtained by fusion. Amorphous phosphorus gave evidence of transformation into the crystalline variety. Precipitated zinc sulphide gave a very hard, compact mass with a gray, metallic-lustered outside, and the appearance of a mass of transparent crystal fragments within. The sulphides of lead and arsenic were obtained with the properties of the natural minerals to a greater or less extent. Copper filings and coarsely pulverized sulphur combined chemically into a black, crystalline mass. A coarse mixture of mercuric chloride and copper filings became cuprous chloride and mercury; and dry potassium iodide and dry mercuric chloride formed a red block of iodide of mercury and potassium chloride. Usually the product obtained had a smaller volume and a greater specific gravity than those of the substances used. These observations have been called in question by Friedel and Jannetaz, of the French Chemical Society, who have subjected various bodies to similar pressures without getting complete union. Jannetaz obtained solid blocks, apparently homogeneous, of several metals; but they all proved to be only schistose in structure, or to allow heat to be propagated through their masses less easily in the direction of the pressure than perpendicularly to it; and they assert that not a homogeneous but only a schistose structure was produced in Spring's experiments.

M. Wroblewski has experimented with liquefied oxygen as a refrigerating agent, and finds some difficulties in using it. Among them is the fact that, when liquefied in large quantity and suddenly allowed to evaporate by release, it does not solidify like carbonic acid, but leaves a crystalline residue on the bottom of the apparatus and on the object plunged in it to be cooled. Another difficulty consists in the necessity of using the liquefied oxygen in closed vessels of very great strength. The apparatus being partly constructed of glass, much inconvenience is caused by the constant danger of serious explosions. For this reason masks are now worn in the experiments. The greatest difficulty is the very short duration of the ebullition, and the too short time of the refrigeration. The temperature produced by the sudden release from pressure of liquefied oxygen is approximately measured at -186° C .

The same investigator, having compressed

hydrogen to 100 atmospheres in a vertical tube and cooled it by successive ebullitions of oxygen, noticed, when the gas expanded after a sudden release from pressure, an ebullition analogous to that observed by M. Cailletet in oxygen, taking place a short distance from the bottom of the tube, but less distinct than the ebullition of oxygen, because of the feeble density of liquid hydrogen. M. Cailletet said he had compressed hydrogen at 300 atmospheres. On expansion a thin fog was visible throughout the entire tube, showing liquefaction of hydrogen.

Prof. Dewar has solidified oxygen by allowing liquid oxygen to expand in a partial vacuum, when an absorption of heat takes place which produces the result sought. In its solid condition oxygen looks like snow, and has a temperature of 200° C . (360° F) below the freezing-point of water.

Prof. Henry E. Armstrong, in a paper read before the Chemical Society, after relating the results of experimental tests on the electromotive force of copper and various alloys in acids, referred to the action of metals on acids generally. He pointed out that it is probably impossible for the chemist to pronounce definitely in favor either of the modern view that the metal directly displaces the hydrogen of the acid, or of the older view that the metal displaces the hydrogen from water—the resulting oxide and the acid then interacting to form a salt; the decision of this question must apparently depend upon the determination of the nature of the phenomena during electrolysis of an acid solution. If the acid alone be the electrolyte, then doubtless the modern view is the correct one; but if both acid and water are electrolyzed, and in proportions which vary according to the conditions, then both the old and the new view of the nature of the action between a metal and the solution of an acid are correct, and the two kinds of change go on side by side.

When finely divided iron is placed in a magnetic field of considerable intensity and exposed to the action of an acid, Mr. Edward L. Nichols has observed that the chemical reaction differs in several respects from that which occurs under ordinary circumstances. He believes that the cause of the difference may be found in the fact that the solution of iron in the magnetic field is, in a sense, equivalent to its withdrawal by mechanical means to an infinite distance. Or the number of units of heat produced by the chemical reaction should differ, within and without the field, by an amount equivalent to the work necessary to withdraw the iron to a position of zero potential. Mr. Nichols's experiments upon this point having brought out other and unlooked-for modifications of the reactions, he has continued them with conditions varied as to initial temperature, the nature and strength of the acid used, and the relative amounts of iron and acid. The reaction, when iron is dissolved in *aqua regia*, varies greatly.

with the strength and temperature of the acid. At low temperatures and in weak acid, hydrogen is given off, and the solution at the end is greenish, containing ferrous chloride; at higher temperatures it is more violent, with the evolution of red nitrous fumes and a yellowish resultant solution of ferric chloride. The critical temperature between these two kinds of reaction is at about 40° C. Performing the experiment in the magnetic field, the first reaction, under conditions which would otherwise have insured the evolution of hydrogen only, was marked by an almost immediate and violent outburst of red fumes, accompanied by a correspondingly greater rise of temperature; and when the reaction was begun with the field in a neutral condition as to magnetism, the mere actuation of the magnet, at any time before the last particle of iron was dissolved, was sufficient to modify it by causing the generation of the nitrous fumes and a more rapid rise of temperature. With nitric acid a perfectly passive mixture could be brought instantly into violent, almost explosive, effervescence, with the evolution of the red fumes, by establishing a magnetic connection. With hydrochloric acid the rise of temperature was much smaller than in the determinations with *aqua regia* and nitric acid; and the speed of the reaction differed but little from that occurring under ordinary circumstances, while its character in the two cases was almost identical.

New Substances.—Cyclamose is the name given to a new sugar, which is found in the tubercles of *Cyclamen Europaeum*, and the composition of which is expressed by the formula $C_{12}H_{22}O_{11}$. The most striking feature about it is its rotatory power (-15.15), which is left-handed; while all the other sugars in the group $C_{12}H_{22}O_{11}$ are right-handed, or inactive. The activity of cyclamose is not affected by temperature, but it decreases under the influence of basic-lead acetate. Like lactose, it reduces Fehling's solution.

In October, 1878, M. Delafontaine announced, on the evidence of an absorption-band included in the spectrum of the former erbia, a new earth, philippia. In the beginning of 1880 he declared the holmium of MM. Loret and Clève identical with his philippium; but later in the same year, finding that the latter body gave no visible absorption-spectrum, and that the bands which he had at first ascribed to it really belonged to holmium, he renounced this conclusion. M. Lecoq de Boisbaudran has, however, since obtained earths exhibiting distinctly characteristic spectrum-lines, from which he has concluded that the oxide hitherto called holmia is not homogeneous, but contains *at least* two radicals. For one of these radicals he proposes to retain the name holmium, while he calls the other one dysprosium—symbol, Dy—from the Greek δυσ-πρότιτος, difficult to approach.

Prof. A. Weisbach has published a description of the new mineral argyrodite, in which

the new element germanium has been discovered. It crystallizes in the monoclinic system, with small crystals often united in rounded groups, so as not to allow of exact measurement. An analysis by Winkler gives as its composition, S 17.13, Ge 6.93, Ag 74.72, Fe 0.66, Zn 0.22 = 99.66. It occurs as a crust on marcasite and siderite, or again on argentite. The locality is the Himmelfürst mine, near Freiberg.

Arminite is another name given by Weisbach to a hydrous sulphate of copper found on porcelain-jasper from Planitz, near Zwickau, where it has been formed in the course of the burning of a bed of coal. It forms a green coating, which is resolved by the microscope into short needles or scales. Analyses give results from which is deduced as its probable formula $Cu_4CaS_2O_{11} + 6H_2O$.

Whitman Cross and L. G. Eakins describe a new mineral which occurs in cavities of a vesicular augite-andesite that is found in the conglomerate of the Green and Table mountains, Colorado. The conglomerate is chiefly composed of worn pebbles and boulders of andesitic rocks, embracing various types. Analysis determined its composition to be that represented by the formula $RO \cdot Al_2O_3 \cdot 10SiO_2 + 5H_2O$, R representing CA, K₂, and No₂. The substance belongs among the alumino-silicates, of which no previously described hydrate contains so high a percentage of silica. The name pilolite, derived from πτίλων, down, in reference to the light, downy nature of its aggregates, is proposed for this mineral.

Girdwood and Bemrose have determined the existence of a blue coloring-matter which is developed in the decay of the wood of the balsam pine (*Abies balsamina*), which is believed to be the same as the color produced in the reaction of pine-wood with phenol and strong sulphuric acid. Tiemann and Haarman have shown that this is due to coniferin, a substance which has been found in a number of other coniferae, and which, according to Kupel, exists in all of them. It has also been found in beet-root and asparagus, and is therefore far more general as a product of plant-life than is usually supposed. Samuel Rideal has found a blue coloring-matter, well developed in one specimen, in the decaying wood of the birch, and has subjected it to tests, by which it has been shown that it does not present precisely the same characteristics as that derived from Canada balsam. On carefully testing birch-wood in various stages of growth for the presence of coniferin, no traces of that substance could be found. By other tests the birch-blue was found to differ very considerably from the other natural blue coloring-matters.

Engel has produced, by the action of heat on the double carbonate of magnesium and potassium, a magnesium carbonate having exceptional properties. It is distinguished chiefly by the facility with which it is transformed into hydrate. Mixed with water, it evolves

heat, and in the course of two hours forms the hydrate containing five molecules of water if the temperature is below 16°, and three molecules if above 16°. It even attracts moisture from the air. Mixed with water to a magma, it solidifies so that the vessel may be inverted without its falling. It is much more soluble in water than the hydrated carbonates, the solution after a while depositing the hydrate in crystals, and the alkalinity of the liquid diminishing. The hydrates which it forms, however, lose easily their carbon dioxide under the influence of water and heat, like the ordinary hydrates.

Herr F. Redtenbacher, of Austria, has invented a new explosive, which is called "miline." It is a brownish-black powder, insensible to percussion and friction, and ignitable only by a spark at from 335° to 340° C. It is said to contain the elements of ordinary powder, in proportions which have been determined after about twenty years of research. It can be employed as powder is, and made to produce effects comparable with those of dynamite.

A. Kossel has found a new base in the pancreatic gland, which he obtained by the same process he had used previously for the preparation of guanin and hypoxanthine. The larger part of the base is precipitated by ammonia along with guanin, and is separated from the latter by means of its chloride. It forms crystals two centimetres long.

Joly has obtained a boride of aluminium, BoAl , in the hexagonal golden plates known as boron diamonds, by reducing boracic acid with aluminium in graphite crucibles. He has also obtained Bo_6Al in large black lamellar crystals; yellow quadratic crystals with brilliant luster, inclosing carbon and aluminium; and one or more compounds of boron and carbon, which have not yet been investigated.

Signor Rio de la Loza has described a new alkaloid, erythro-ceralloides, recently discovered in the seeds of *Erythrina coralloides*, which is remarkable as being the only poisonous principle so far obtained from a leguminous plant.

Clemens Winkler has discovered in the mineral or silver ore argyrodite (which was found by Weisbach in one of the Freiberg mines in 1880) a new metal, analogous to antimony, to which the name of germanium has been given. For its extraction, argyrodite is smelted with soda-ash and flowers of sulphur, whereby the sulphide is obtained; this is converted into the oxide by heating with strong nitric acid or driving off sulphuric acid, and the oxide is reduced by heating with hydrogen. As thus obtained, germanium is a dark-gray powder, which melts to a fluid regulus under borax glass, at about 900° C. It has a great tendency to regular crystallization, is very brittle, easily pulverized, has a distinct conchoidal fracture, and exhibits a fine metallic luster. Its specific gravity is 5·469. It is not soluble in hydrochloric acid, but readily in *aqua regia*. With

nitrates and chlorates it yields a deflagrating mixture. The atomic weights obtained for it by totally different processes are 72·32 and 72·28. The compounds of germanium certainly known are two oxides, two sulphides, two chlorides, and one iodide. Many germanium compounds are distinguished by their solubility and some by their volatility.

New Processes.—F. Lux has founded upon the results of experiments in saponification and gelatinization a method for the qualitative detection of fatty oils in mineral oils. For the detection of large quantities of fatty oil, 10 per cent. and upward, he heats a portion of the sample with a fragment of caustic soda to a boil, keeping it at that temperature for one or two minutes. If large quantities of fatty oil are present, they are recognized by the peculiar odor, and certainly by the coagulation of the liquid which ensues on slight cooling. For the detection of smaller quantities of fatty oils, down to 2 per cent., we take two beakers of moderate size, one of which can be inserted into the other so as to leave a slight interval between their bottoms. In the larger one is put so much melted paraffin that, when the narrower glass is inserted, the paraffin rises a little more than half height in the narrow annular space between the two. Into the inner glass is then poured so much paraffin that the two bodies of liquid rise approximately to the same height. In this medium a paraffin bath is obtained, in which an overheating of the liquids contained in the test-tubes, such as might occur in a single beaker, is rendered impossible, while a perfect observation of the behavior of the oil is made practicable. The thermometer should be kept at from about 200° to 210°. Two test-tubes each receive a small quantity of the oil in question. To one are added a few parings of sodium, and to the other a rod of caustic soda, which must be about a centimetre beneath the surface of the oil. The two test-tubes are then subjected to the action of the bath, and examined after having been cooled. If the mineral oil in question contains even as little as 2 per cent. of fatty oil, it will congeal on cooling in one or both tubes, to a more or less cohesive jelly.

H. B. Cornwall has given an account of his experiments with three of the commoner methods for examining butter-fats by the quantitative determination of the fatty acids obtainable by decomposition of the fat, or by allied operations—Hehner's, Reichert's, and Koettstorfer's. Hehner's process, which is described in the "Zeitschrift für Analytische Chemie," 1877, p. 145, pure and simple, was held incapable of distinguishing cocoanut-oil in mixtures, if not alone, from true butter-fat. Koettstorfer's method, "Fresenius's Zeitschrift," 1879, p. 199, which depends on the larger amount of alkali required to saponify butter-fat in comparison with a very large number of other animal and vegetable fats, has been shown by Moore to be unreliable when applied to mixtures containing

cocoanut-oil. Reichert's method, "Fresenius's Zeitschrift," 1879, p. 68, which consists in determining the acidity of the distillate of soluble fatty acids and water, obtained under constant conditions, commended itself as the only one of the three that is with any practical degree of accuracy capable of distinguishing between cocoanut-oil, in mixtures or alone, and pure butter-fat.

Dr. J. Traube has found the most important methods that have been proposed for determining the amount of fusel-oil in brandies to be defective. Such are the two colorimetric methods, and Röse's method, which is based upon the increase in volume of alcohol containing fusel. He proposes a capillarimetric method, by which so minute a proportion of fusel as $\frac{1}{10}$ per cent. may be detected. It depends upon the fact that the height to which aqueous solutions of organic bodies of one and the same series ascend in capillary tubes often decreases with the increasing molecular weight of the dissolved body. Hence, a very small per centage of fusel in brandies might be expected to betray itself by a reduction of the capillary ascent. The capillarimetric method has the advantages over that of Röse, that it admits a more speedy execution of the experiments, and that the difference in the composition of the fusels has less influence in it than in that; and it is very much more delicate.

Mr. William Crookes's method of chemical fractionation as specially applied to the "rare earths" erbia, holmia, thulia, terbia, yttria, and ytterbia, consists in fixing upon some chemical reaction in which there is the most likelihood of a difference in the behavior of the elements under treatment, and performing it in an incomplete manner, so that only a certain fraction of the total bases present is separated; the object being to get part of the material in the insoluble and the rest in the soluble state. The operation must take place slowly. Let us suppose that two earths are present, nearly identical in chemical properties, but differing by an almost imperceptible variation in basicity. Add to the very dilute solution dilute ammonia in such amount that it can only precipitate half the bases present. On filtering we have the earths divided into two parts, and we can easily imagine that now there is a slight difference in the basic value of the two portions of earth; the portion in solution being, by an almost imperceptible amount, more basic than that which the ammonia has precipitated. This minute difference is made to accumulate by a systematic process until it becomes perceptible by a chemical or physical test. When the balance of affinities seems to be established, and the earths appear in the same proportion in the precipitate and the solution, they are thrown down by ammonia, and the precipitated earths are worked up by some other process so as to alter the ratio between them, when the previous operation can be again employed.

M. H. Moissan has effected a probable isolation of fluorine, by passing a strong Bunsen pile-current through hydrofluoric acid which has been cooled to a state of tranquil ebullition at -23° . The addition of a little water or fluorhydrate of fluoride of potassium is essential to secure conductivity. Decomposition proceeds continuously, with the disengagement of hydrogen at the negative pole, and at the positive pole of a colorless gas in which crystallized silicon burns in the cold with great brilliancy, becoming fluoride of silicon. De Ville's adamantine boron burns in the same manner, but with more difficulty, becoming fluoride of boron. Arsenic and antimony combine with this gaseous body causing incandescence. Sulphur takes fire in it, and iodine combines with a pale flame, losing its color. It decomposes cold water, producing ozone and hydrofluoric acid. The metals are attacked with much less energy. Organic bodies are violently attacked. From these actions and other test-experiments, the author is satisfied that the gas described is either fluorine or a perfluoride of hydrogen.

A process has been devised at Buxton, England, for disposing of the sewage of the town by precipitating it by means of a mineral water derived from the lower coal formations of the vicinity. This water contains 1·2 grains of iron per gallon in the state of ferrous carbonate, held in solution by carbonic acid. On exposure to the air the carbonic acid escapes, and the iron, taking up more oxygen, subsides in the state of ferric hydroxide in combination with a considerable part of the organic impurities suspended and dissolved. The results were very satisfactory. They showed a large reduction in the free and albuminoïd ammonias; and they supply additional proof that mineral salts are fully capable of precipitating dissolved organic impurities.

Prof. Harvey W. Wiley has been engaged in experiments on optical methods for determining milk-sugar, particularly with reference to finding the best method of preparing the milk-sugar for the polariscope, and to making a comparison of the numbers obtained by this instrument with those given by the ordinary process of extraction. The reagents found to contribute to the best results were basic plumbic acetate, sp. gr. 1·97, in the proportion of 1cc. to 50 or 60cc. of milk; acid mercuric nitrate, 1cc.; and mercuric iodide with acetic acid.

In Steffen's patented process for extracting sugar from molasses, sirups, and the juices of plants, enough lime is mixed with an aqueous saccharine solution to form a lime-saturated saccharine solution from which a calcareous saccharate is precipitated. The percentage of lime in the finished and perfect saccharate is then reduced by mixing the hard, purified saccharate with a saccharine liquid, whereat the precipitated hydrate of lime is separated by filtering.

Edward Hart, of Lafayette College, uses, in

standardizing permanganates, a valve made by filing or blowing a hole in a glass tube open at the lower and closed at the upper end. At the beginning of the process, the valve stands outside of the flask. The liquid in the flask is rapidly heated after the iron wire is introduced, and, as soon as the wire is dissolved, is boiled to expel all air, when the tube is pushed down so that the opening is inside of the opening of the rubber cork. This prevents the air from flowing back into the flask as it cools.

Mr. H. Y. Castner, of New York city, claims to have discovered an expeditious and cheap method of preparing the alkali metals, through reduction of their hydrates or carbonates by the carbide of a metal or its equivalent. His process requires only a comparatively moderate temperature, and is represented as giving a full yield of the metal—equivalent in the case of sodium, to 90 per cent—from each charge.

G. C. Caldwell and S. W. Parr have observed that the determination of fat in milk by De Fecamp's lacto-butyrometer was liable to variations which seemed to depend upon differences in the feed of the cow. Tollens and Schmidt improved upon the method, and obtained more satisfactory results, but still left room for closer accuracy. The authors propose a method as a substitute for that given by Tollens and Schmidt. Their lacto-butyrometer differs from that originally given by Marchand only in being open at the bottom as well as at the top. Their process consists in treating the milk in the proportion of 10cc. with 8cc. of ether and 2cc. of 80 per cent. alcohol; shaking well and adding 1cc. of ordinary ammonia diluted with about its volume of water; shaking; adding 10cc. of 80 per cent. alcohol; and shaking again. The tube is then put into water at from 40° to 45° C. and kept at that temperature till the ether-fat solution separates; after which it is cooled in water at 20° C., and the reading taken from the lowest part of the surface-meniscus to the line of separation between the ether-fat solution and the liquid below it. This method is found "capable of a degree of accuracy that leaves nothing to be desired."

Industrial Chemistry.—In one of his last addresses to the French Academy, M. Dumas called attention to the numerous benefits pertaining to the chemical industries which have taken their departure from the Leblanc process for the extraction of soda from sea-salt. First, the working of the process placed at the disposal of the soap-makers, the glass-manufacturers, the bleachers, and the paper-makers, all the alkali they needed, and gave to all industries unlimited quantities of sulphuric and hydrochloric acids at extremely low prices. The second result was the introduction of chloride of lime for the bleaching of vegetable tissues. Next arose the question whether it was wise to depend upon the sulphur of Sicily, which might at any time be enormously advanced in price; and iron pyrites, previously worthless,

was utilized for the manufacture of sulphuric acid. The price of soda becoming reduced by competition, a new source of profit was found in the manufacture and sale of chloride of lime. A residue of sulphate of lime was formed, which was likely to prove a great nuisance, when the danger was removed by the invention of a process for regenerating the soda which was left from the leachings. The rare and valuable peroxide of manganese was consumed in the manufacture of chlorine and chloride of lime, and the useless chloride of manganese was formed in its place. This waste was remedied by the invention of a process for getting rid of the chloride. The price of soda continuing to fall, the next remedy was sought in treating new ores which would furnish other remunerative merchantable products. For iron pyrites was substituted copper pyrites, in which precious metals are often accompaniments, and from which profit might be derived through the silver or gold that could be extracted from their cinders.

Mr. A. McDonald Graham prepares a composition for precipitating sewage by heating a mixture of iron pyrites and binoxide of manganese in close contact with air, whereby a sulphate of manganese and iron is obtained. In operating on the sewage, the sulphates of iron and manganese may be used with a certain proportion of clay. Charcoal may also be associated with it if the sewage is much discolored, and lime if it is acid; but generally the sewage will be found sufficiently alkaline. In order to convert the sewage-mud into a useful precipitant, it must first be dried. Formerly the drying process was attended with much difficulty and expense; but as the nature of the product to be treated has become better understood, the drying difficulty has been to a great extent surmounted. It is found by experience that after such a precipitating medium as alumina, iron, or manganese has passed through the sewage, it acquires the property of spontaneous heating when mixed with organic matter. If, therefore, the mud obtained by the use of such precipitants on the sewage be deprived of superfluous water by means of a filter-press and placed in heaps in a sheltered situation, a natural heating takes place, after which the mud becomes dry and friable and can be readily brought into a fine state of division. It should then be furnace with sufficient iron pyrites to reconver the iron and manganese into sulphates.

Richard Meyer makes use of the microscope in the examination of printed cotton goods to ascertain whether the dye as such has been produced inside of the fiber, or whether it has been employed already formed and fixed by means of albumen. If the fabric is macerated, using a needle so that the single fibers can be isolated, these will appear equally colored throughout their entire mass if they have been colored by a dissolved dye. The characteristic form of the fiber remains unaltered, and it can

be plainly seen that the coloring-matter is deposited equally in its interior. When the albumen method has been used, the fiber appears entirely without color. At various points dyed bits of coagulated albumen will appear gummed to the fabric, and some of these particles will be found isolated in consequence of the maceration.

H. L. Greville separates carbon disulphide as a residual product from coal-gas, which he finds to exist in the proportion of from thirty to forty-eight grains in the hundred feet of crude gas. It is removed by using gas-purifiers containing lime through which gas has been passed containing H_2S , but no CO_2 . When saturated the lime has a bright orange-red color. By distilling this lime with water, CS_2 is obtained, amounting to between 1 and 2 per cent, on the amount of substance taken. Picked specimens yielded from 3 to 4 per cent.

Analytic Chemistry.—Willis G. Tucker, in a paper read before the Albany Institute, has made a critical estimate of the value of the principal methods for the chemical analysis of water, and has exposed the present condition of science and practice on the subject. The methods at present in use, each of which has its advocates, are, the permanganate process, which employs permanganate of potash to determine the amount of oxidizable matter in the water; Wauklyn and Chapman's albuminoid-ammonia process, which aims to estimate the amount of putrescible nitrogenous matter; and Frankland and Armstrong's combustion process, by which the relative proportions of nitrogen and carbon in the impurities are determined. No one of them enables us to recognize the real morbific material which water may contain, or is able to distinguish with certainty between disease-producing constituents and the less harmful and innocent matter of organic origin. Some advantage may be gained, but it is not decisive, by using two or all of them together. All attempts to establish definite standards, so that the points for and against a water can be counted up, and a balance struck, have failed. With the means at present at our command, waters which are very pure, chemically, of medium purity, and foul, may be distinguished, but whether these waters are therefore safe to use, doubtful or harmful, must be a matter of opinion, and is not to be decided by the analytical results. Dr. Buchanan, of the Local Government Board of Great Britain, says, on this point, that while we must ever be on the watch for indications that chemistry affords of contaminating matters gaining access to our waters, we must go beyond the laboratory for evidence of any drinking-water being free from dangerous organic pollution. The chemist can, indeed, tell us of impurity and hazard, but not of purity and safety. Chemical analysis may reveal to us the presence of compounds which have doubtless resulted from the decomposition of animal matter; and, while there may be no certainty of its producing spe-

cific disease, we shall err on the safe side if we refuse to use the water. And an analysis may assure us that a given water is of such a degree of purity that the probabilities are that it carries with it no harmful matter; but this kind of evidence is always to be received with caution, unless the results of the examination are borne out by other evidence proving that pollution is not probable. While it can not tell us that a water is absolutely safe or necessarily harmful, it can tell us that it contains those constituents which may reasonably be believed to accompany harmful matter. Prof. Mallet confirms this view in the report of the National Board of Health for 1882, where he holds that it is not possible to decide absolutely upon the wholesomeness or unwholesomeness of a drinking-water by the mere use of any of the processes for estimating organic matter or its constituents; that such processes must be used in conjunction with the investigation of other evidence of a more general sort as to the source and history of the water, and should then be deemed of secondary importance; that there are no sound grounds on which to establish such general standards of purity as have been proposed, looking to exact amounts of organic carbon or nitrogen, albuminoid ammonia, oxygen of permanganate consumed, etc., and that two entirely legitimate directions are open for the chemical examination of the organic constituents of drinking-water—the detection of very gross pollution, and the periodical examination of water-supplies—in order that the normal or usual character of the water having been previously ascertained, suspicious changes which may occur shall be detected and investigated.

Dr. Curtis C. Howard, of Stirling Medical College, Columbus, Ohio, recognizing the desirability of finding tests for impurities in water available for physicians' use, suggests that they should fulfill the conditions of requiring no apparatus and but one or two reagents, and of giving results which, manifested either by the appearance of a color or a precipitate, are at once recognized by the eye. The most considerable impurities in water are attended by the presence of nitrites and chlorides. For nitrites the most delicate reagents, and the most satisfactory, for Dr. Howard's purpose, are sulphuric acid and naphthylamine hydrochloride. If water containing not more than one-thousandth part per hundred thousand of nitrous acid be treated with a drop of hydrochloric acid and a drop each of solutions of these reagents, after standing fifteen or twenty minutes, only the faintest tint of pink will be perceived. If a marked pink be produced, the quantity of nitrites is sufficient to indicate serious contamination. In sewage and in the water from a few wells, the color was a deep carmine, and the quantity present was from twenty to sixty-six times the limit stated. The reagents for chlorides are nitric acid and silver nitrate, which produce in water

containing chlorides a white precipitate of silver chloride.

The detection of adulterations in oils is often a difficult and trying task; and the percentage of the oil used to adulterate can seldom be determined. We must often be satisfied by proving that there has been a mixture, without knowing the nature of it. Prof. Bechi, of Florence, recommends for detecting cotton-seed oil in olive-oil, a 1-per-cent. solution of nitrate of silver in absolute alcohol. When heated with the oil in a water-bath at 84° C., the mixture will begin to darken if there be any cotton-seed oil present.

Mr. Oscar S. Carter recommends the elaidin test in detecting a mixture of a drying and non-drying oil, and in detecting adulterations of olive-oil. It depends upon the fact that olein and oleic acid, in contact with peroxide of nitrogen, yield a crystalline, solid, fatty body, at 32° C., to which the name *elaidin* has been given. Non-drying oils, and most animal fats, contain oleic acid. Olive, almond, rape, arachis, and castor oils, and the oils made from lard and tallow, contain a high percentage of olein. These oils form, with nitrogen peroxide, solid elaidin of a white or yellow color. The drying oils—such as linseed, hemp-seed, and poppy-seed oils—do not form elaidin, but remain liquid for some time, and become slightly colored. A test for lard-oil is its complete saponification with caustic soda. Shark-liver oil and African fish-oil resist saponification. Pure lard-oil gives, with nitric acid, a yellow color, approaching orange. Adulterated oils, with nitric acid of the same strength, gave a distinct brown color on standing; and the part that resisted saponification gave a much darker, a deep-brown, color. The determination of the specific gravity is the most important of the physical tests of oils. Viscosity is an important feature, but the testing by it requires much care. While we can not depend on any single test, the evidence afforded by several tests is often conclusive and satisfactory.

Mr. Thomas W. Drown, while employing a process for the determination of metallic sulphides, with especial reference to the estimation of pyrites in coal, by treatment with sodium-hydrate solution saturated with bromine, found that the results secured, though agreeing well together, fell far short of accounting for all the sulphur in the coal. He thence inferred that the sulphur not oxidized by the treatment with the bromine solution was an organic constituent of the coal, and could only be determined by a process which would oxidize the coal completely. In the investigation of the question that arose, he performed analyses to determine the effect of coking on the amount and condition of sulphur in coal, using coke prepared in the laboratory and coke baked in ordinary ovens in two distinct series of experiments. The results of the analyses, while they were not regarded as complete, indicated the presence of sulphur both as pyrites and as an

organic constituent of the coal, and also of iron in the two conditions of combination with the sulphur and with silica or other inorganic constituents of the ash.

Mr. Thomas M. Morgan, in several attempts to determine the nitrogen in organic nitro-derivatives by heating the substance in sealed tubes of hard glass containing oxygen, in the presence of a little mercury, found that in all cases the nitrogen obtained was considerably less than the quantity theoretically present in the substance analyzed. The source of this deficiency was eventually traced to the action which the oxides of nitrogen exerted on the alkali of the glass and on the mercury; and the reality and extent of this action were confirmed by a number of significant experiments. The action is much more energetic at a high than at a low temperature, and appears to be very slight till the heat approaches redness.

Brügelmann has described a number of experiments in crystallization which support the law of Berthollet, that when two salts are dissolved, the solution contains four salts produced by their mutual reaction. Equal volumes of cold saturated solutions of cobalt chloride and nickel sulphate gave crystals containing both metals, but combined with sulphuric acid only. Solutions of copper sulphate and cobalt chloride, mixed together, deposit wine-red crystals, consisting principally of sulphates of both metals, but containing admixed chlorides. A copper sulphate solution and one of potassium dichromate, when mixed, deposit, first, bright-green crystals containing both metals, principally as sulphates—these crystals, in various intermediate stages, yellow-green, green, and blue-green, and finally a dark-brown deliquescent mass, becoming crystalline over sulphuric acid, consisting essentially of both metals combined with chromic acid.

By a recent modification of Dumas's process for the estimation of nitrogen in coal and in nitrogenous compounds that yield tarry matter on destructive distillation, the gas evolved is collected in two portions: that which escapes during the distillation in CO₂; and that which is collected while the residual nitrogenous carbon is undergoing combustion in oxygen. By this method some insight is given as to the condition of the nitrogen in the compound. The authors have found that different nitrogenous compounds vary greatly as to the proportion of their nitrogen which escapes during destructive distillation, and also that the ratio between the two portions of nitrogen is simple and constant in each compound.

Chemical Synthesis.—P. W. Latham reports a successful synthesis of uric acid in the manner indicated by Horbaczewski. He exposes glycocine and urea in the proportion of one to ten to a temperature of from 210° to 212°; dissolves the resultant mixture in warm water assisted by solution of potash; and treats with ammonium chloride and ammonia, ammonium-nitrate of silver, ammonio-sulphate of magnesia,

and ammonia; then treats with solution of potash, sulphureted hydrogen, and hydrochloric acid. After boiling and cooling, uric acid, mixed more or less with cyanuric acid, and a little coloring-matter, are deposited. The uric acid is separated from the cyanuric acid by further treatment with the ammoniacal solution of silver and magnesia. Although the yield is small, the crystals of uric acid are well marked, answer to all the required microscopic tests, and respond perfectly to the murexide test.

Ladenburg has prepared piperidine, with nearly the quantitative yield, by treating pyridine with sodium in alcoholic solution, and has also obtained some interesting homologues of that base.

The general impression seems to prevail that the synthetical production of the vegetable alkaloids will soon be accomplished. While it is very probable that every compound produced in the vegetable organism may ultimately be obtained artificially, a knowledge of the constitution of these compounds must first be acquired. The most important result of recent investigations in this field is the demonstration that many of the alkaloids are definitely, others very probably, to be considered derivatives of quinoline and pyridine. Thus, in the case of quinic acid, which differs from quinoline by the substitution of two radicals for two hydrogen-atoms, as the structural formula of quinoline admits of 42 possible acids of the composition of quinic acid, it has to be determined which of the 42 isomers quinic acid really is, and this has been done with a certain, but not full, measure of success. Morphine is probably a derivative of pyridine, and stands, at the same time, in close structural relation to the hydrocarbon phenanthrene; but there is still a great gap between the knowledge of these isolated facts and the artificial production of this alkaloid. Atropine, the active principle of belladonna, has been reconstructed synthetically from its decomposition products, tropic acid and tropine. Tropic acid, also, has been artificially prepared, but we are still ignorant of the constitution of tropine. Hence, we have as yet no method of producing atropine independently of the plant from which it is now obtained. But granting that the structural composition of the alkaloids was clearly established, their production on a technical scale would still probably be impracticable, for it is likely that the materials necessary for their artificial manufacture would be too costly and the processes too complex for available use. Mr. Cresswell Hewett has, however, announced that he has discovered a process for the synthetical manufacture of quinine from an article that exists in abundance everywhere, whereby the price of that drug may be greatly reduced.

W. H. Green obtains saligenin synthetically by heating determined quantities of methylin chloride, phenol, and sodium hydrate dissolved in water, for six hours. The contents of the

matress are neutralized with hydrochloric acid, and the saligenin is extracted with ether.

Atomic Weights.—Brauner has estimated the atomic weight of cerium from the ceric oxide left after ignition of anhydrous cerous sulphate. Twenty-three determinations gave a maximum atomic weight of 140,433, a minimum of 140,033, and a mean value of 140,210; thus harmonizing the periodic values of the group. H. Robinson has criticized the work of Wolf, on which the atomic weight (138) given for cerium in Clark's "Constants of Nature" is based, maintaining that Wolf's method of preparation would give lanthanum and not ceric oxide.

Prof. Cl. Winkler has provisionally fixed the atomic weight of germanium at 72·75, and has assigned it a rank between silicon and tin, as the "eka-silicon" of Mendeleeff's classification. M. Lecoq de Boisbaudran had calculated the atomic weight of the hypothetical body between silicon and tin to be 72·28, taking Si = 28 and Sn = 118. A spectroscopic examination of a specimen of the metal received from Prof. Winkler gave 72·32; repeated with a modification for the avoidance of a probable uncertainty, it gave 72·27.

John Waddell, conceiving that previous determinations of the atomic weight of tungsten might have been vitiated by the presence of molybdenum and silica, undertook a new determination with samples from which those impurities had been carefully removed, employing, with his processes, a new method of purification, by fractional precipitation. The result of his experiments was the deduction of 184·5 as the atomic weight of tungsten, that of oxygen being taken as 16. This is confirmatory of previous investigations of the subject, and of the accuracy of the commonly accepted atomic weight of the element in question.

Chemistry of Plants.—V. Meyer and E. Schulze have made researches on the action of hydroxylamine salts upon plants, with the expectation of finding that this plays an important part in the synthetical activity of vegetation. They instituted parallel experiments on the culture of maize, to which nitrogen was supplied in the form of ammonium sulphate, hydroxylamine sulphate, and hydrochlorate and potassium nitrate. The result was to show that the hydroxylamine salts act as direct poisons to plant-life, as Bertoni has shown they do toward animal life. Having established this fact, the authors inferred the probable action of the salts as antiseptics, and experiment showed that they partake this property in a remarkable degree.

M. E. Maumené has found manganese in wines and in a considerable number of vegetable and animal products in which it had hardly been supposed to be present; and now announces, as the result of his latest investigations, that he has detected it in a great many plants. Wheat contains not less than from $\frac{1}{1500}$ to $\frac{1}{700}$ of metallic manganese, and rye,

barley, rice, and buckwheat have also yielded considerable quantities of it. A little of it may be found in the potato, and more in the beet, the carrot, beans, peas, asparagus (principally in the green part), sorrel, wild chicory, lettuce, parsley, and in many fruits. It occurs in large proportions in cacao and the coffees, and in tea there are five grains of the metal to one kilogramme of the leaves. Tobacco is quite rich in it, as are also a variety of other plants, including some forage and some medicinal plants.

Prof. F. H. Storer, of the Bussey Institution, has made analyses of the leaves of the yellow or curled dock (*Rumex crispus*), and of the sprouts of the common milk-weed (*Asclepias cornuta*), plants which are sometimes cooked and eaten as greens, for the purpose of ascertaining their food-value. The dock-leaves were taken when the tufts had attained a length of about a foot and a half, and before any flower-stocks had begun to appear. Of the milk-weed, sprouts and shoots from four to twelve inches long were cut off just below the surface of the ground at about the same time, or in the latter part of May. Analyses were made of specimens of either kind dried, both in the air and at 110° C. The analyses of the dock gave the ratio of albuminoids to carbohydrates as 1:2; those of the milk-weed as 1:1.6. Thus both plants are shown to be highly nitrogenous when young, and to compare favorably in composition with other weeds used as food, the analyses of which have given good results.

From analyses of ninety-two specimens of wheat and straw ashes, the whole history of each of which was known, Messrs. Lawes and Gilbert conclude that there is, on the whole, great uniformity in the mineral composition of the grain, under different conditions of manuring, provided only it is perfectly and normally ripened. The influence of season produces a much wider range in the mineral constituents of the grain than the manuring. This, however, is not the case with the straw, as it appeared that the amount of mineral and ash constituents found in it have a direct connection with the amount available in the soil.

Experiments made by Prof. Gilbert and Dr. W. J. Russell show the existence of a close connection between the formation of chlorophyl and the amount of nitrogen assimilated by plants. The amount of carbon assimilated is not, however, in proportion to the chlorophyl formed, unless a sufficiency of mineral substances required by the plants is available. In cases where nitrogenous and mineral manures were applied, a lower proportion of nitrogen assimilated, and chlorophyl formed over a given area was observed; and this is no doubt due to the greater assimilation of carbon and consequent greater formation of non-nitrogenous substances. But the amount of nitrogen assimilated and chlorophyl formed were as great, if not greater, in the latter case than in the former.

Berthelot and André, of Meudon, France, have conducted a series of investigations on the existence of nitrates in plants, the results of which they have published in four memoirs. They found that, of the plants they examined, *Borrage officinalis* and the *Amarantaceæ* contained most nitrates; that those salts are most abundant in the stems, and next in the roots; that they increase from germination till just before flowering, and then diminish, but increase again after the reproductive function is completed, and even after the death of the plant. Four sources are suggested as possible origins of nitrate: the fertilizers used; the soil; the nitric acid of the atmosphere; and formation in the plant itself. Analysis of the soil showed that the earth over a hectare, to the depth of 0.325 of a metre, contained less than half the quantity of nitrate contained in the *Borrage* grown on its surface, and less than one sixth of that in the gigantic amaranth. Direct experiment also showed that the nitrates in the soil did not perceptibly increase during the growth of nitrates in the plant; and that even when they were washed out of the soil by the rain the quantity in the plant remained sensibly the same. As to the atmosphere, analyses at the Montsouris Observatory showed that the nitrate in the rain which fell during the season amounted upon a hectare to 4.4 kilograms only, or hardly one twentieth of the quantity in the soil. The authors therefore conclude that the formation of nitrates in plants is an established fact, and seems to result from the special action of a more general function of the cellules, the function which gives rise to oxidations; that is to say, the same function which produces carbonic acid and carbonates, oxalic, tartaric, citric, malic, and other peroxygenized acids.

Prof. J. H. Gilbert records, as the result of comparable experiments at Rothamsted with the same crop, that depth of green color by no means implies a finally greater amount of carbon assimilation; while it had previously been experimentally proved there that the deeper color was associated with relatively higher percentage of nitrogen in the dry or solid substance of the herbage; and this obviously means a lower relation of carbon to nitrogen. Further experiments were instituted in co-operation with Dr. W. J. Russell, who undertook to make comparative determinations of the amounts of chlorophyl in parallel specimens, while Prof. Gilbert and his associates were to determine the percentages of dry matter and nitrogen. The facts were brought out in these experiments that the separated leguminous herbage of hay contains a much higher percentage of nitrogen in its dried substance than the separated gramineous herbage; and that, with the much higher percentage of nitrogen in the leguminous herbage, there was also a much higher proportion of chlorophyl. Under comparable conditions, the *leguminosæ* eventually maintain a much higher relation of

nitrogen to carbon than the *gramineæ*; in other words, in their case carbon is not assimilated in so large a proportion to the nitrogen taken up. Wheat-plants, manured with ammonium salts alone, show a much higher percentage of nitrogen than those manured with the same amount of ammonium salts with mineral in addition. The result was exactly similar in the case of barley. It is evident that the chlorophyl formation has a close connection with the amount of nitrogen assimilated, but that the carbon assimilation is not in proportion to the chlorophyl formed, if there be a relative deficiency of the necessary mineral constituents available. No doubt there had been as much, or more, of both nitrogen assimilated and chlorophyl formed over a given area, where the mineral as well as the nitrogenous manure had been applied; but the lower proportion of these substances in the dry matter was due to the greater assimilation of carbon, and consequent greater formation of non-nitrogenous substances. These results of experiments in the field are perfectly consistent with those obtained by vegetable physiologists in the laboratory, who have found that the presence of certain mineral or ash constituents, and especially of potassium, is essential to the assimilation of carbon.

From experiments reported by MM. Déhé-rain and Maquenne, on the absorption of carbonic acid by leaves, it appears that the proportion of pure carbonic acid absorbed under atmospheric pressure varies with the quantity of water contained in the leaves.

The results of Aimé Girard's investigations of the alimentary value of the several tissues of which the wheat-grain is composed go to show that while a considerable proportion of the seed-coats is digestible by man, the proportion thus utilized, when calculated upon the whole grain, is very small, and the quality of the bread is impaired by the presence of those substances. This is particularly the case with raised bread. According to Mége-Mouriès, the envelope contains a soluble ferment resembling diastase, which, during the raising process, in addition converts starch into sugar and diminishes the elasticity of the gluten, thereby tending to make the bread heavy, while it also imparts a brown color to it. Bread made with baking-powder would naturally escape these effects to a large extent. It is certain that wholesome, palatable bread, which many persons may prefer for dietetic reasons, may be made from whole wheat-flour. But, from an economical point of view, such flour can hardly claim any great advantages, so long as nearly every one can command a mixed diet, and the bran can be profitably utilized as cattle-food.

Miscellaneous.—All compounds of arsenic are known to be toxic except the so-called arsenic-methyl bodies, or cacodyl compounds. Concerning these the testimony has been conflicting. The principal experiments on the

subject have been made with cacodylic acid (CH_3AsO_2). As OOH, a compound which contains 34·35 per cent. of metallic arsenic, equivalent to 71·4 per cent. of arsenious oxide. Bunsen and Kürschner found it not poisonous. Schmidt and Chomse reached a similar conclusion. Lebahn experimented on rabbits, all of which died, and concluded that cacodylic acid does possess poisonous properties, and that its toxic symptoms are like those of ordinary arsenical poisoning. John Marshall and Walter D. Green, of the University of Pennsylvania, made a series of experiments upon dogs in the fall of 1885 with what they had ascertained by severe tests to be perfectly pure cacodylic acid. The most marked effects and symptoms following the administration of the drug were: nervous symptoms, with vomiting, purging, and slowing of respiration, due to spinal irritation and slight paralysis; decided weakness in the hind extremities; and a peculiar condition of somnolence resembling hemiplegia. The symptoms as a whole were nearly analogous with those produced by arsenious oxide, but the results were not fatal. The experimenters reached the conclusion that cacodylic acid is not a poisonous substance in the general acceptance of the word poison.

In illustration of the volatility of mercury, Berthelot remarks that, in his laboratory is a mercurial trough, and some eight feet from it a glass case containing a bottle of iodine. After some years, he noticed that the neck of this bottle above its junction with the stopper was covered with red mercuric iodide.

W. Engling has found that ammonium oxalate when added to milk does not precipitate its calcium salts; but that if, after the addition of the oxalate, calcium chloride be added, the casein is separated and carries calcium oxalate along with it. He infers from these facts that the calcium of milk "is in definite organic combination with the casein, and this combination must first be destroyed before calcium can be separated as oxalate. The calcium albuminates in milk resemble basic salts, and are readily decomposable by acetic, lactic, and tartaric acids." W. Mattieu Williams suggests that this view of the chemical condition of the calcium of milk has considerable physiological and practical interest, in the light it may throw upon the manner in which the bone-material of infants and the young of animals is separated from the milk upon which they are fed. Combinations of bases with mineral acids are rarely if ever broken up in the animal body for assimilation, and it is at least doubtful whether such compounds are appropriated in their combined state for organic construction and renewal. "But a loose compound of calcium with casein is just the sort of material which can be, and is, subjected to chemico-vital metamorphosis. If it can be shown that the phosphoric acid of the milk is also combined with an easily dissociable organic base or bases, we have the condi-

tions especially suited for their separation and plastic reunion in the body."

Prof. Clowes, examining some of the sandstones of the New Red beds near Nottingham, discovered the presence of barium sulphate in varying proportions, while some of the lower beds also contained calcium carbonate. In some of the beds the barium sulphate was very unequally distributed, and formed a network or a series of small masses more or less spherical in shape. In such sandstone the sand-grains between the sulphate streaks and patches were quite loose, and the surfaces that were weathered presented a honeycombed appearance. To explain the presence of the barium sulphate, Prof. Clowes suggests that it might have been deposited along with the sand; but if such had been the case it had certainly undergone a physical change, as it now existed in a firm, compact, and crystalline condition. It would, therefore, appear that it had been either deposited from aqueous solution or that it had been rendered crystalline by a slow percolation of the solvent liquid through the sedimentary deposit, or owed its origin to the action of water containing calcium sulphate passing through sandstone cemented originally with barium carbonate.

The views concerning the transformation of starch into sugar by boiling with sulphuric acid, or the action of diastase, have been so contradictory that the nature of the changes which starch undergoes has remained open to question. Musculus was of the opinion that starch was split up into two molecules of dextrin and one molecule of sugar, and that later the acid acted on the dextrin thus formed, though very slowly. Payen asserted that starch did not split up in the manner thus supposed, under the influence either of diastase or of sulphuric acid, but that a gradual transformation took place. F. Salomon, who, by the adoption of improved methods has succeeded in placing the reaction on a satisfactory basis, first studied its beginning and end products—starch and glucose—and then the intermediate products—"soluble starch" dextrin, and maltose—particularly with regard to the analytical processes involved in their determination. Allihn has shown that starch is never entirely converted into sugar by the ordinary process of action with dilute sulphuric acid and the reducing solution of copper, 95 per cent. being the maximum that can be obtained by it. But if hydrochloric acid is used according to the method of Sachsse, a complete conversion may be effected. When pure sugar solutions are used, the hydrochloric or Allihn process is exact; but if the solutions contain other substances, good results can be obtained only when special care is taken. Salomon studied the action of dilute sulphuric acid in an apparatus in which a certain amount of starch solution could be boiled at a fixed concentration, and from which portions could be easily taken for analysis at regular intervals.

These portions were examined as to their action on iodine solution, their rotatory power and specific gravity. By the study of sixteen observations, in some of which the boiling processes were continued for twenty-eight hours, it was seen that the change from one color to another is very gradual; that it always takes place in the same order, viz., from deep-blue to violet, red-violet, red, red-brown, brown-yellow, yellow, and finally colorless; and that neither the complete extinction of the color nor the individual shades correspond exactly with the amount of sugar formed as shown by the rotatory power.

Prof. H. Carrington Bolton has obtained some very interesting results regarding the action of citric acid, which is hardly less powerful than that of hydrochloric acid on minerals. His later researches bear particularly on the effects of prolonged action at ordinary temperature. Of the sulphides, chalcocite showed signs of decomposition at the end of ten days, and gave, after several months, a partial solution of a green color. Pyrite was slightly attacked in eight days, and a month later gave a reddish-yellow solution. Chalcopyrite acted in a similar manner, and lost 11 per cent. after fourteen months. Of the oxides, magnetite and limonite were strongly attacked in eight days, while haematite yielded more slowly, but showed decided decomposition after several months. Of the silicates, datolite was most quickly decomposed, yielding gelatinous silica after twenty-four hours. Hornblende, pyroxene, almandite, epidote, vesuvianite, and serpentine were decidedly decomposed in eight days, while after fourteen months hornblende and pyroxene were completely decomposed, and serpentine yielded a dry, gelatinous mass. The feldspars were unevenly attacked under like condition. Tourmaline and staurolite yielded after four or five months, while talc and cyanite seemed to resist attacks. Muscovite and biotite yielded very slowly. Prof. Bolton has prepared a table showing, after these results, the relative disintegration of minerals by citric acid in solution, in which the minerals are classified as those quickly decomposed, those slowly decomposed, those very slowly decomposed, and those not decomposed. To the last class belong quartz, corundum, spinel, beryl, fluorite, and barite.

J. R. Duggan has made experiments for the determination of diastatic action. The principal conditions affecting the converting power of substances containing diastase are time, temperature, and the presence of various foreign substances, such as acids, alkalies, etc. Previous experiments have shown that the action of the ferment is very much retarded by the presence of quite small amounts of alkali. When greater quantities of alkali are used, there is little or no conversion. The author's experiments on the influence of acids have led him to doubt the general statement

that diastase acts best in a slightly acid medium; or, if this is true, the amount of acid required is more minute than is usually stated.

CHILI, an independent republic of South America. (For details relating to area, population, etc., see "Annual Cyclopædia" for 1883 and 1884.)

Government.—The President is Don Manuel Balmaceda, whose term of office will expire on Sept. 18, 1891. The Cabinet was composed in 1886 of the following ministers: Interior, Señor J. I. Vergara; Foreign Affairs and Colonization, Don Francisco Freire; Justice, Public Worship, and Instruction, Señor E. C. Varas; Finance, Señor Edwards; War and Navy, Señor C. Atúnez. The Chilian Minister to the United States is Señor Ambrosio Montt. The Chilian Consul at New York is Don B. R. de Espriella; and the Consul-General at San Francisco, Don J. de la Cruz Cerdá. The United States Minister to Chili is Hon. William R. Roberts. The United States Consuls in Chili are: D. M. Dunn, at Valparaiso; J. Grierson, at Coquimbo; and J. F. Van Ingen, at Talcahuano.

Political Reforms.—Important reforms are being attempted in Chili. One project provides that no senator or deputy shall be interested in any public contract; another is, that neither the President, nor any minister, shall give an office to a near relative unless it be proved that he is qualified in every respect to hold it. Another project being agitated is, that the President of the Republic shall in future be elected by the Congress instead of by popular suffrage. The agitation of this matter is due to the terrible bloodshed in the last elections, when upward of forty persons were killed and a large number wounded.

Army.—The strength of the army—in conformity with decrees of Dec. 26, 1884, and Jan. 9, 1885—was 7,100 men, commanded by 970 officers, the number of rank and file only to be kept up for eighteen months, when it was to be reduced to 5,541 men. The National Guard, in conformity with the law of Sept. 26, 1882, is subject to mobilization whenever required.

Navy.—At the close of 1885 the Chilian navy consisted of the following steamers: two iron-clads, one monitor, three corvettes, two gun-boats, three cruisers, two transports, four *escampavias*, six pontoons, and nine torpedo-boats. The law of Jan. 9, 1885, left in active service only two iron-clads, one monitor, three corvettes, three gunboats, three cruisers, two *escampavias*, five pontoons, and 800 sailors and marines to serve as a garrison of the fleet and colony of Magallanes. The navy was manned by 1,399 sailors. The Government has ordered another man-of-war, according to the designs of Sir E. J. Reed. It is to be an armored cruiser of 4,500 tons, with a speed of 19 knots an hour. The armament will consist of two 25-ton 10-inch guns; one 14-ton 8-inch gun; two 6-inch; four 6-pounders; eight mitrailleuses; and eight tubes for firing Whitehead torpedoes. The cost of the vessel, according to the

designs approved by the late Admiral Lynch and Capt. J. J. Latorre, is from \$1,200,000 to \$1,500,000.

Postal Service.—The number of post-offices in operation early in 1885 was 411; letters dispatched, 13,438,439; registered, 98,899; sample packages, 28,668; law notifications, 15,598; Government dispatches, 669,160; newspapers, 15,615,069; aggregate number of items of mail matter, 29,865,833, against 24,231,967 the previous year. The receipts were \$388,425, an increase of \$41,647 as compared with those of the year preceding; and the expenses amounted to \$326,980, being less than those of the previous year. Postal orders were issued to the amount of \$1,448,608.

Railroads.—There were in operation on Jan. 1, 1885, the following-named lines of railway:

GOVERNMENT.	Length in kilometres.
LINES.	
Santiago to Valparaiso.....	186
Santa Rosa branch.....	45
Santiago to Palmilla.....	304
Maule to Taleagueano.....	418
Total.....	948

PRIVATE.	Length in kilometres.
Arica to Tacna.....	63
Pisagua to Tres Marias.....	106
Iquique to Tres Marias.....	194
Patillos to Salitreras del Sur.....	93
Mejillones to Cerro Gordo.....	29
Antofagasta to Salinas del Dorado.....	123
Talita to Refresco.....	82
Chanaral to Salado.....	60
Calero to Copiapo.....	242
Carizal Bajo to Carrizal Alto.....	36
Coquimbo to Serena.....	15
Coquimbo to Ovalle.....	123
Serena to Vicuña.....	60
Tongoy to Tamaya.....	55
Laraque to Maquegua.....	40
Total.....	1,826

Those planned and partially in course of construction, by the Government and by private companies, are the following lines:

LINES.	Length in kilometres.
Quilpué to Melipilla.....	150
Calera to Ovalle de Norte.....	250
Pelequen to Peumo.....	50
Talca to Constitución.....	85
Parral to Cauquenes.....	55
Coihue to Mulchen.....	25
Renao to Osorno.....	300
Angol to Traiguén.....	74
Concepcion to Cañete.....	160
Total.....	1,149

Congress also gave authority to private companies to undertake the following extensions of lines now in operation: To prolong the Anito-fagasta line to the Bolivian frontier, and in another direction to the Aguas Blancas nitrate-fields; to construct a line between the port of Guasco and the city of Vallenar; from Santiago to the Las Condes silver-mines, east of the capital; Chagres to Santa Rosa de los Andes; Nilhue to Catemo; Concepcion to Lota; and Lota to Colicó de Sur.

Work on the Chilian section of the Transandine Railway was begun in July, and as the section between Buenos Ayres and San Juan was finished on May 8, Chili and the Ar-

gentine Republic hope to be connected in the summer of 1888. Besides the 2,274 kilometres in operation in 1886, there are short railways to coal-mines, as, for example, to Coronel, 5 kilometres; to Lota, 3; between Lebu and Punta Arenas de Magallanes, and a tramway of 8 kilometres from Port San Antonio to Boca de Maipu.

The total cost of Government railroads in Chili, on Dec 31, 1884, was \$42,107,934, and the movement on them had been as follows:

ITEMS.	1883.	1884.
Gross earnings	\$5,561,890	\$6,000,053
Expenses	3,008,317	3,141,295
Net earnings	2,553,373	2,858,758
Passengers conveyed	2,947,087	2,515,077
Merchandise forwarded (metrical cmts.)	9,959,184	10,693,735

In Santiago there are in operation 56 kilometres of horse-railroads, and in Valparaiso 10. There are also tramways in Concepcion, Chilian, Limache, Rengo, Quillota, and Talca.

Highways.—The Government is keeping in good condition upward of 700 public highways, of a total length of 50,000 kilometres; and the municipalities and private parties keep in repair 1,600 highways, with an extent of 40,000 kilometres.

Inland Navigation.—Seventy-eight navigable water-courses traverse the interior, the aggregate distance being 4,500 kilometres.

Telegraphs.—The Government has under its charge the telegraph system of the republic, there being in operation, in 1885, 126 offices; the length of wire was 10,320 kilometres, and the cost had been \$688,189. There were sent 411,784 private messages, against 393,781 the previous year, and 110,390 Government messages, against 84,841; the receipts being \$198,-609, against \$173,417. The public may also avail themselves of a private line between Santiago and Valparaiso, and of another between Santa Rosa de los Andes and the Argentine Republic. Finally, there is the cable along the Chilian coast, in communication northward with the world's cable system.

Finances.—The report of the Chilian Minister of Finance, made on June 1, 1886, showed that the ordinary and casual income in 1884 had been \$39,910,133, being much more considerable than in 1883; thus, the customs duties reached \$26,139,601, being \$924,192 greater than in 1883. During the first eleven months of 1885 the revenue from customs did not exceed \$21,299,874, whereas during the corresponding period of 1884 it had attained \$23,115,809. As the actual expenditure in 1884 was \$44,-874,666, there remained in the treasury on Jan. 1, 1885, including a balance from the previous year \$6,902,164. Without counting this balance, the revenue was estimated to have reached \$36,580,000 in 1885, while the budget for 1886 was fixed at \$35,080,000 income, and the outlay was estimated at the same figure. The foreign indebtedness outstanding on Jan.

1, 1885, amounted to \$33,843,000. The annual interest on the foreign debt amounts to \$3,405,419. There is a home debt, arising from expenditure during the war of independence, for railroads, and for the Spanish war, as well as for the one with Peru and Bolivia. Part of this debt bears from 3 to 7 per cent. interest, while there is a sinking-fund of between $\frac{1}{4}$ and 4 per cent. On Jan. 1, 1885, the domestic debt was \$53,500,626. Chili's total indebtedness was consequently, \$60,430,-329 on Jan. 1, 1885; but since then it has decreased \$3,350,000, the loan of 1878 repaid.

The Government withdraws from circulation and cancels annually \$1,500,000 paper money; and will continue doing so till it is reduced to \$16,000,000, and as much silver is kept in reserve in the treasury for the eventual resumption of specie payment in that metal. The Mint purchased, in 1885, \$72,122 worth of gold, against \$90,928 in 1884; and \$736,448 of silver, against \$1,637,414. It coined in gold, silver, copper, and nickel, \$647,287 in 1885, against \$1,981,371 in 1884. The paper money in circulation issued by banks is \$12,911,443.

There are, finally, four loan banks at Santiago entitled to issue notes to bearer with interest, making advances on real estate; the notes to be withdrawn at a fixed date.

Commerce.—The foreign-trade movement in Chili has been as follows:

MOVEMENT.	1884.	1885.
Import	\$52,886,846	\$41,218,725
Export	57,766,450	51,490,286
Total	\$110,658,296	\$92,709,011
Decrease .....	.....	17,944,285

The imports, in two years, were as follow:

NATIONS.	1884.	1885.
From England	\$20,528,343	\$15,505,558
From Germany	10,259,540	7,116,525
From France	8,561,778	6,480,561
From Argentine Republic	3,434,152	3,288,239
From United States	4,160,570	2,721,265
From Peru	2,936,000	2,645,816
From other nations	3,006,168	8,515,961
Total	\$52,886,846	\$41,218,725

The exports, in the same years, were as follow:

NATIONS.	1884.	1885.
To England	\$41,955,582	\$39,578,588
To Germany	8,863,943	8,240,785
To France	8,767,369	2,705,012
To Peru	2,810,989	1,767,508
To United States	1,386,315	1,627,008
To Ecuador	1,014,998	452,907
To other nations	8,017,264	1,818,588
Total	\$57,766,450	\$51,490,286

The Chilian copper exportation has been, in 1882, 43,129 tons; in 1883, 41,229 tons; in 1884, 41,780 tons; in 1885, 37,000 tons. The Chilian nitrate of soda exportation has been:

DESTINATION.	1884.	1885.
To Northern Europe.....	Quintals. 10,390,810	Quintals. 8,554,687
To the Mediterranean.....	186,576	41,980
To the U. States on the Atlantic.....	1,211,714	827,296
To the U. States on the Pacific.....	49,073	77,712
Total.....	11,883,173	9,501,625

The American trade with Chili has been as follows:

FISCAL YEAR—	Imports from Chili into the United States.	Domestic exports from the United States to Chili.
1886.....	\$1,182,845	\$1,973,548
1885.....	604,525	2,192,672
1884.....	537,936	8,236,945
1883.....	435,584	2,887,551

Maritime Movement.—There entered and left Chili ports:

MOVEMENT.	Number.	Tonnage.
1884:		
Vessels arrived.....	9,833	8,455,072
Vessels sailed.....	9,938	8,573,694
Passengers arrived.....	44,430	Retained,
Passengers sailed.....	41,326	3,104
1885:		
Vessels arrived.....	9,090	7,975,399
Vessels sailed.....	8,247	7,916,797
Passengers arrived.....	46,759	Retained,
Passengers sailed.....	26,746	20,013

Resources.—Chili produces annually about 6,500,000 hectolitres of wheat, and 2,500,000 hectolitres of barley and other cereals, and all vegetables and fruit peculiar to the temperate zone. In 1884, 5,812,219 hectolitres of wheat were produced, and 11,437,560 decalitres of wine. The cattle increase at the rate of over 400,000 head per annum, while the annual increase in the number of sheep and goats is 1,000,000. Silver production amounts to 160,000 kilogrammes a year, that of gold to 500. Copper production averages 40,000 tons per annum; coal is mined to the amount of 800,000 tons, and nitrate to 550,000 tons. Manufacturing is rapidly developing; there are five steam flour-mills, a sugar-refinery at Vina del Mar, near Valparaiso, and at Santiago a cloth-factory turning out a creditable article from native wool. There are several agricultural, mining, manufacturing, and medical societies, publishing illustrated bulletins and reviews.

Manganese-Ores.—The deposits of manganese-ore in Chili may be said to never have been explored; nevertheless, enough is known from the investigations of several eminent geologists to leave no room to doubt that the mineral exists in immense quantities in the republic, more especially in the northern provinces. The first attempt to utilize the ore was made about three years ago, when a bed, south of Santiago, was opened; but the cost of conveying the ore to Valparaiso for shipment proved an insuperable obstacle to the success of the undertaking, and it was abandoned. The beds of manganese in the province of Coquimbo are surface deposits, and the cost of taking out the

ore is trifling, but the great difficulty is the expense of transportation to the coast. The cost of the ore by the time it is placed alongside a vessel in Coquimbo harbor ranges from \$10 to \$12, Chilian currency, per ton. The price of manganese in England is quoted to-day at £3 10s. per ton for ore of a ley of not less than 45 per cent. The ley of the ore exported from Coquimbo has varied from 45 to 55 per cent.

Education.—Gratuitous instruction was given to men in 17 schools in 1885, against 16 in 1884; to women in 7, against 5; elementary schools for children had increased from 240 in 1884, to 247 in 1885, for boys alone; for girls there were 187, against 188 in 1884, and for children of both sexes there were 310 schools, against 287 in 1884; together, 768 free schools, against 736 in 1884. There were enrolled, in 1885, 63,559 children of school age, against 70,382 in 1884, the average attendance being 45,795 in 1885, against 49,766 in 1884. Of private schools there were 557 in 1885, being 45 more than in 1884, and the number of pupils enrolled 26,011, so that the total number of children of age to attend school was 89,570. The amount of money spent by the Government for free schools was \$2,303,800, and the municipalities spent altogether \$90,000 for the purpose. Seminaries were supported by the Archbishop of Santiago, and the Bishops of Concepcion, Ancud, and Serena. Higher education is obtainable in the National Institute of Santiago, which, in 1884-'85, had 980 students, being an increase of 69 over 1884. There were, besides, the following educational establishments: At Santiago, a school for artists and mechanics; the Agricultural Institute, with a model farm; the Academy of Painting; the School of Sculpture, and the Conservatory of Music.

In April, 1885, there were 65,094 volumes in the National Library; there are a Museum of Natural History, a Botanical Garden, and Museum of Anatomy, and Cabinet of Physics, all attached to the National Institute.

There is a military school, attended by 115 cadets in 1885; a naval school at Valparaiso, with 70 cadets, in the same year, attached to which is a marine library; and the naval officers formed in that city, on April 10, 1886, an association to publish a monthly paper. At Santiago there is a hydrographic bureau, which prepares naval maps, and publishes the "Anuario de la Marina."

The Press.—There were published in 1886 128 newspapers, 25 of them at the capital, Santiago; 13 at Valparaiso; 5 at Iquique; 4 each at Concepcion, Copiapo, Curicó, Serena, and Talca; 3 each at Ancud, Anjeles, Cauquenes, Chillan, San Carlos, San Felipe, Vallenar, and Freirina; 2 each at Ligua, Melipilla, Osorno, Pisagua, Quillota, Quixihue, Rancagua, and San Fernando, and one in nearly every capital of a department.

Lighthouses.—Between Punta Arenas, near the Strait of Magellan, and Arica, 12 light-

houses with revolving and fixed lights are to be met with in chief ports, and of the latter kind several in minor ports. The service is increasing.

Merchant Marine.—There were afloat under the Chilian flag, on April 30, 1885, 35 steamers, with a joint tonnage of 17,265; 6 ships, with 7,341 tons; 86 barks, with 41,955; 6 brigs, with 1,745; 8 schooner-brigs, with 2,405; 9 schooners, with 989; and 16 sloops, with 915; together 166 vessels, with 72,614 tons, being an increase for the year of 5 steamers and 3 sailing-vessels.

CHINA, an empire in Asia. The present Emperor is Hwangti, born in 1871, the son of Prince Ch'un, brother of the Emperor Hien-fung. He succeeded to the throne on Jan. 22, 1875. The highest governing body is the Nei-ko, consisting of four members, two Chinese and two Tartars, with two assistants from the Han-lin, or university, who see that their acts are in conformity with the civil and religious laws. Under them are the Liu-pu, or six boards of government, each presided over by a Tartar and a Chinese. A seventh official board, dealing with the navy and coast defenses, was established in the latter part of 1885, in accordance with the dying counsels of the great statesman and general, Tso-Tsung-Tang. The Board of Censors is an independent body, any member of which has the privilege of presenting remonstrances to the Emperor. The governors of provinces exercise a high degree of authority, but are removable at the will of the central power. Entrance into the public service can only be gained by passing severe literary examinations that are held yearly.

Area and Population.—The area of China proper is estimated at 1,297,999 square miles, and the population at 383,000,000; the area of the dependencies of Manchuria, Mongolia, Thibet, Soongaria, and Eastern Turkistan at 2,881,560 square miles, and their aggregate population at 21,180,000—making the total area of the empire 4,179,559 square miles, and the total population 404,180,000. The area and population of the eighteen provinces of China proper, according to the latest official returns, are as follow:

PROVINCES.	Square miles.	Population.
Chili.....	58,949	17,937,000
Shaantung.....	65,104	86,247,585
Shansi.....	56,268	12,211,458
Honan.....	65,104	22,115,527
Kiangsu.....	44,500	20,905,171
Nganhwel.....	48,461	20,596,288
Kiangsi.....	72,176	24,534,118
Chehkiang.....	39,150	11,558,692
Fukien, with Formosa.....	53,489	25,790,556
Hupeh.....	70,450	33,365,005
Hunan.....	74,320	21,092,604
Shensi.....	67,400	8,482,198
Kansu.....	86,608	5,411,188
Szechuen.....	168,800	67,712,897
Kwangtung, with Hainan.....	79,456	29,706,249
Kwangsi.....	78,250	5,151,827
Kweichow.....	64,554	7,669,181
Yunnan.....	107,969	11,721,576
Total	1,297,999	382,978,840

There are twenty-two ports on the coast and on the Yangtse river that are open to foreign commerce under various treaties. Their names and population are as follow: Canton, 1,600,000; Tientsin, 950,000; Hankow, 700,900; Foochow, 630,000; Shanghai, 350,000; Ningpo, 240,000; Nanking, 150,000; Ching-kiang, 135,000; Taiwan, 135,000; Takow, 100,000; Tamsui and Amoy, 95,000; Wenchow, 80,000; Kelung, 70,000; Newchang and Wuhu, 60,000; Kiukiang, 53,000; Ichang, 34,000; Chefoo, 32,000; Swatow, 30,000; Kiungchow, 30,000; Pakhui, 25,000. The number of foreigners residing in the treaty ports in the beginning of 1885 was 6,364, of whom 2,704 were natives of Great Britain, 621 of the United States, 554 of Germany, and 424 of France. About half of the foreigners lived in Shanghai.

Confucianism is the state religion, but the bulk of the Chinese are Buddhists. The aboriginal hill tribes are Nature-worshippers. There are about 30,000,000 Mohammedans, chiefly in the southwest and northeast, 1,000,000 Roman Catholics, and 20,000 Protestant converts.

The Army.—Many improvements have been wrought in the Chinese military and naval organizations since the war in Tonquin. The active military forces consist of three armies, that of Manchuria, that of Turkistan, and that of the Center. The Army of Manchuria has a strength of about 70,000 men. It is divided into two army corps, with headquarters at Tsitsisar and Mukden, respectively. The infantry are armed to a considerable extent with Mauser rifles, and the artillery with 8-centimetre Krupp field-pieces. The Army of the Center, with headquarters at Kalgan, northwest of Pekin, has a strength of 50,000 in time of peace, which can be doubled in war-time. The men come from a strong and brave race, and are armed with Remington rifles. The Turkistan Army is employed constantly in keeping order on the western frontier. There are permanent Manchu garrisons in the large cities in the north and along the coast. The territorial militia, called Braves, numbers about 200,000 in peace-time, and can be increased to 800,000. There is a large Tartar cavalry force, but the horses are small, though strong, and the equipment worthless.

The Navy.—The Chinese Government had two powerful ironclads built at Kiel in 1885. They are sister ships, named the "Ting Yuen" and "Chen Yuen," of 7,335 tons, 6,000 horse-power, and a speed of 14½ knots, with 14-inch flat-faced armor. Each carries four 12-inch Krupp breech-loaders in two barbette towers, and two 6-inch guns. A smaller protected cruiser, also built in Germany, carries two 8-inch Krupp guns in a barbette and one 6-inch gun. Two swift unarmored steel cruisers, carrying two 8-inch Armstrong guns each, besides 40-pounders and machine-guns, were launched at Kiel in 1884; and two smaller ones, carrying two 25-ton Armstrong guns, and capable of steaming 16 knots, were constructed in Eng-

land in 1881. All of these vessels are attached to the North China squadron for the defense of the capital, which includes also 12 gunboats, each armed with a 26-, 35-, or 38-ton gun. This squadron has been brought to a high degree of efficiency under the instructions of Captain Lang, an English officer, who was admiral of the North China fleet, commonly called Li's fleet on account of being under the control of the Viceroy Li-Hung-Chang, when hostilities with France began. Not thinking it proper to engage in operations against France, he resigned his appointment. He was succeeded by Admiral Sebelin, a captain in the German Navy, who engaged many other German officers, introduced Krupp in the place of Armstrong guns, and made many other changes. The Chinese authorities, who had been greatly pleased with the work of Admiral Lang, who possessed the confidence of Li-Hung-Chang especially, dismissed Admiral Sebelin and the other Germans in this squadron early in 1886 and re-engaged the former admiral.

The Foochow, Shanghai, and Canton fleets include about 50 unarmored cruisers, corvettes, sloops, and gunboats. There have been added to the naval force recently several swift torpedo-boats for Whitehead torpedoes. A cruiser of 2,150 tons and 2,400 horse-power has been constructed in China, and several others are building. Besides buying large quantities of arms for the army in foreign countries, the Government has established arsenals which under the superintendence of foreigners turn out arms and ammunition at a rapid rate.

The new naval ministry at Pekin, which has the Prime Minister for its chief, Li-Hung-Chang for vice-president, and the Marquis Tseng for one of its members, is expected to control the entire fleet and naval defenses of the empire. Formerly the naval affairs of China were, like everything else, decentralized, each viceroy being required to defend his own province, and maintaining for the purpose such a naval establishment as he thought necessary.

Finances.—The total revenue amounts to about \$125,000,000, derived from taxes on land, grain, licenses, and the import and export duties, which are collected by foreign inspectors. The land-tax ranges from 75 cents an acre in the north to \$3.25 in some parts of the south. The customs duties amounted in 1884 to \$18,293,000. The largest part of the duties is paid on exports. The heaviest expense of the central Government is for the army, which costs about \$75,000,000 per annum. China contracted loans in 1874 and 1878 amounting to less than \$11,000,000, paying 8 per cent and secured on the customs receipts. A part of the principal was paid off; but in 1884 a silver loan of \$7,500,000 was raised abroad, and in 1885 others amounting to \$12,500,000, making the total foreign debt about \$23,000,000.

The exhaustion of the imperial hoard and of the provincial treasuries during the war in Tonquin suggested reforms in the financial ad-

ministration that have replenished the various treasures. The officials have formerly been allowed to enrich themselves by corrupt practices that have been winked at but not condoned by the Government. In a national emergency, like the war with France, these private hoards are called into requisition. By strict economy and watchfulness the Government has been able to replace the depleted treasures and to expend large sums on telegraphs and military and naval improvements without resorting to heavy public loans. Li-Fungpao, formerly minister to Germany, the Taoutao of Formosa, and other high functionaries, were disgraced and made to give up their irregular accumulations in order to avoid the dangerous expedient of a foreign loan, and officials who were spared are careful to give no offense in the present discharge of their duties. The public revenues are also largely increased by the additional imperial taxes permitted in the new opium convention.

Commerce.—The net imports of 1884 amounted to 72,760,780 haikwan taels, or about \$104,600,000; the total exports to 67,147,680 haikwan taels, or \$87,300,000. Of the imports, 30,770,453 haikwan taels came from Hong-Kong, 16,945,086 from Great Britain, 14,338,981 from India, 8,655,552 from Japan, 2,418,367 from the United States, and 1,752,222 from the Continent of Europe, not including Russia, whose share was 258,304 haikwan taels. Of the exports 19,465,553 haikwan taels were destined for Great Britain, 17,289,750 for Hong-Kong, 10,070,522 for the Continent of Europe, 8,279,598 for the United States, 5,488,681 for Russia, 1,795,815 for Japan, and 635,844 for India. The chief imports were opium, valued at 26,150,241 haikwan taels; cotton goods, 22,141,222 taels; metals, 4,096,870 taels; woolen goods, 3,709,678 taels; raw cotton, 1,784,451 taels; coal, 1,492,552 taels. The largest exports were tea, of the value of 29,055,142 taels; silk, chiefly raw, 23,382,241 taels; sugar, 3,760,088 taels; straw braid, 1,953,917 taels.

Navigation.—During the year 1884 the tonnage entered and cleared at Chinese ports was 18,806,788, of which 12,152,949 tons were British, 2,993,613 Chinese, 2,381,741 American, 939,706 German, 215,105 Japanese, and 93,963 French.

Telegraphs.—In December, 1884, the imperial telegraph system comprised 3,089 miles of line and 5,482 miles of wire, and it has since been greatly extended. A line between Pekin and Tientsin brings the capital into telegraphic communication with Newchang, Chefoo, Shanghai, Yangchow, Soochow, the seven treaty ports on the Yangtse, Canton, Fatshan, Woochow, and Lungchow, and with the southwestern provinces by a line running from Canton into Yunnan, constructed in 1885. Shanghai is connected with Foochow, Amoy, Kashung, Shoa-shing, and Ningpo. Lines have also been constructed between Foochow and Canton and between Taku and Port Arthur.

Commercial Treaty with France.—Negotiations between M. Cogordan, the French plenipotentiary, and Li-Hung-Chang, for the arrangement of the terms on which trade is to be conducted across the frontier between Tonquin and China, were carried on at Tientsin for nearly a year. The French sought to obtain large concessions, on the supposition that the result of the war enabled them to dictate terms, but the Chinese were resolved to yield as little as possible, and disputed trivial points in a contentious spirit in order to deprive France of even the semblance of exacting concessions. The delimitation of the Tonquin frontier advanced smoothly, but is not expected to be completed before 1888. The French demanded the right of keeping an official agent at Talifoo or Yunnan-fu, in Yunnan, but only obtained the stipulation that no other country should have that privilege. China agreed to open two places to trade: one above Laokai, giving access to Yunnan; and one on the frontier beyond Langson, at the entrance of the rich and populous province of Kwangsi. This provision was already contained in the treaty of Tientsin, signed on June 9, 1885. China will establish custom-houses at these points, and France may maintain consular agents there. China has the right to keep consuls in Hanoi, Haiphong, and other places in Tonquin, and is given favored-nation treatment in that country, with freedom of trade and residence. The French are accorded the usual rights in the open places in China. Only persons with Chinese passports can enter China from Tonquin. Imports across the frontier into China pay one fifth less than the maritime customs dues, and exports one third less. Articles not mentioned in the tariff pay 5 per cent. ad valorem in each case, and all such goods pay the *likin*, or inland transit dues, in the usual way. These reductions are not so great as those of the Russian overland tariff. The French plenipotentiary contended for a stipulation enabling France to impose a poll-tax on Chinese immigrants into Tonquin, and virtually obtained it in a vaguely worded clause. The reductions in the duties are not regarded by English merchants as sufficient to give the French any advantage in the trade of Southeastern China or Yunnan, at least not until Tonquin is tranquillized, French goods admitted duty free into Tonquin, and a railroad constructed to the frontier. Even then they can be counterbalanced by the opening of a treaty port on the upper Canton river. Lord Salisbury disputed M. de Freycinet's contention that the overland duties and the maritime duties stand on a different footing, and intimated that similar reductions could be demanded at the open ports under the favored-nation clause; yet no such claim was put forward by the British Government, which expects to reap the entire benefit of the commercial concessions obtained by France in the future trade across the Burman frontier. The

treaty provides for the absolute prohibition of the trade in opium between Tonquin and China. When asked to let the French build railroads in China, Li-Hung-Chang gave them permission to make tenders for a small line running from the Kaiping coal-mines to Tientsin, for which the contract was ultimately awarded to the Krupp Company, of Germany. The French were completely disappointed in their expectations of obtaining material commercial advantages, and repeatedly stopped the negotiations for several weeks at a time; but the Chinese statesmen had no fear of a resumption of hostilities.

Direct Representation of the Vatican.—A result of the French war, which weakened the position of France in China and her prestige in the far East, is the prospective revival of the direct relations between the Chinese Government and the Vatican that existed in former centuries, and the cessation of the protection over Catholic missions in China exercised by France, sometimes needlessly and mischievously for the sake of political effect. In July a convention was concluded with the Holy See, committing the charge of the interests of the Catholic churches and missionaries in China to a Papal internuncio at the Chinese court. Monsignor Aglardi was appointed by the Pope to this post. The Vatican acted in this matter in compliance with a request of the Chinese Government, which invited the Pope to send a plenipotentiary to Pekin while hostilities with France were still in progress. The French Government, in the beginning of August, informed the Vatican that if a Papal legate, with functions independent of France, were sent to Pekin, the French ambassador at the Papal court would be withdrawn. On Aug. 21 a fresh proposal was made to France, to the effect that if an envoy were sent by the Vatican he should have a temporary mission. The Curia agreed to send only a temporary envoy, if the Chinese Government would consent. The Chinese Government notified the Pope that no representative would be acceptable unless perfectly independent of France and other countries, through a legate possessing full and free diplomatic functions. The Papal court informed the various European governments of the compromise that had been effected with France, and ordered Archbishop Aglardi to depart on his mission. On Sept. 12 the Pope received an ultimatum from France, threatening that if an envoy of any description were sent to Pekin the ambassador at the Vatican would be recalled, the Concordat annulled, the church and state separated, and the grant of 50,000,000 francs a year to the Catholic Church in France suppressed.

The question had hitherto been complicated with that of the removal of the Petang, or North Cathedral, in Pekin, which the French Government utilized for the purpose of imposing its wishes on the Chinese Government. An arrangement by which the Catholic au-

thorities, with the approval of the Pope, agreed to the removal of the cathedral, was vetoed by France, although the missionaries were desirous to please the Chinese Government in this regard. The cathedral stands within the palace-grounds, and is an offense to the Chinese court because the towers overlook the palace-garden. The circumstance that the spire towers above the palace gives it, according to a universal Chinese superstition, a sinister influence over the fortunes of the royal house, with which the early death of the last two Emperors is associated in the popular mind. The site was presented to the Pope by the Emperor Kang-Chi, about two centuries ago. In 1862 the French Government insisted in rebuilding on the same site, against the protest of the Chinese Government, and has resisted all efforts to have the offensive structure removed. The Chinese are anxious and determined to have this mark of national humiliation, commemorating the fall of Pekin, removed before the coronation of the Emperor. The indemnity paid by China after the war of 1860 was used to rebuild the cathedral.

The Pope finally yielded to the pressure of France, and postponed the sending of an envoy to Pekin, but reserved liberty of action. On Sept. 14 he informed George C. Dunn, the Chinese special envoy, with whom the negotiations had been conducted, that the dispatch of a legate was for the present suspended, but that the agreement with China with regard to the rank and independence of the Papal mission to Pekin would be maintained.

All the foreign powers, except Russia, had already declared against further recognition of the French protectorate over Catholic missionaries of their own nationalities. The Chinese Government came to the decision that it would not recognize French passports except those of French priests, and would require from every Catholic missionary going into the interior a passport signed either by a consul of his own nationality, or by an accredited agent of the Pope. Demands for compensation or redress of injuries on behalf of missionaries must be made through the same channels. The Chinese Government contemplated sending an envoy to the Vatican, even though the Pope should not have a representative in Pekin. The French protectorate over missionaries rests on no formal treaty, but has been tacitly accepted since the war of 1860. During the Tonquin war, in which Christian converts were enlisted in the service of France against their fellow-countrymen, the dangers involved in the existence of a body of citizens not only owing spiritual allegiance to foreigners, but also looking to them for secular protection, was brought home to the Chinese Government.

Persecution of Christians.—In Chung-King, on the upper Yangtse, a mob on July 9 destroyed a newly constructed Catholic church, forced the missionaries to flee for their lives, and then

turned its fury against all Europeans, sacked their houses, and threatened their lives. The cause of this particular outbreak was probably the fact that the missionaries had covered the roof of their church with yellow tiles, choosing the color appropriated to the Emperor; though the Catholic priests spread a report ascribing it to the indiscreet conduct of American Protestant missionaries. The residence of the apostolic vicar was burned to the ground with all its contents. The property of American and English Protestant missionaries was likewise destroyed. The foreign consuls escaped by flight into other provinces. The scene of the outbreak was the largest city in the populous mountainous province of Szechuen. The disturbance spread through the eastern part of that province. Christian converts were killed wherever found; whole villages were destroyed. In northern Cochin-China similar outrages occurred. As many as fifty Christians were massacred there, their houses burned, and their lands devastated. The Chinese were predisposed to attacks on Christians by the fact that native converts had fought with the French in Tonquin. They were furthermore embittered against foreigners by the intelligence of the persecution and massacre of Chinamen in the United States. In June, an American Methodist lady missionary had been injured by a mob in Chung-King, and the authorities had treated lightly complaints made in this case. Previous to this, Mr. and Mrs. Fulton, and Miss Mary Fulton, of the American Presbyterian mission, had, on May 6, been driven out of Kwai Ping, four hundred miles southwest of Canton, and the mission station and hospital established by them were set on fire.

Port Hamilton.—In April, 1885, when war with Russia seemed probable, the British admiral on the China station, with the authorization of the Government, acting at the suggestion of Sir Harry Parkes, then minister at Pekin, took possession of Port Hamilton, a sheltered harbor formed by three small Corean islands, lying between Quelpaert and the mainland. The port thus annexed by Great Britain is situated in the midst of a group of islets, 38 miles from the northeast coast of Quelpaert, in 34° north latitude, and 127 $\frac{1}{4}$ ° east longitude. The harbor is spacious and safe, but the bottom is not good, so that moorings are required for firm anchorage. It was acquired as a coaling-station and naval port, lying nearly 2,000 miles nearer the Russian possessions on the Pacific coast than Hong-Kong, and commanding the Corean strait, which is always blockaded by British vessels when a war is anticipated. The sea routes between the Yangtse-Kiang, the northern ports of China, and the treaty ports of Japan, pass this point, which also commands the southern approach to the Russian naval arsenal of Vladivostock.

The islands are inhabited, but can not be depended upon to produce supplies of any kind, except fish. When the English took possession

of the port, it was reported that they anticipated Russian cruisers by only a few hours. Formal protests were made by China and Japan, but both powers were content to see the harbor in British possession rather than have it fall into the hands of Russia. The British Government intended to fortify the harbor, but has as yet taken no practical steps to do so. The naval officers who examined the position reported that the islands could not be adequately fortified without an excessive outlay, and advised the abandonment of the port. The British have erected buildings for troops and war materials on the islands, and have laid a submarine cable to Hong-Kong at a cost of £90,000, but have not yet erected a coaling-depot there. The fact that China does not acquiesce in the occupation deters them from treating the islands as definitely annexed to Great Britain.

CHOLERA. Notwithstanding much time was given to the study of cholera during the year 1886, the additions to our knowledge of the disease have not been as satisfactory as was hoped. Yet, as a result of the investigations (some carried on in the very home of the disease), several mooted points have been decided. By direction of the President of the United States, Dr. E. O. Shakespeare, of Philadelphia, visited Europe and Asia, as Government Commissioner, to investigate cholera and report to Congress. He sailed from New York in October, 1885, and returned in September, 1886, having visited the infected localities of France, Spain, Italy, and India. Cholera is now recognized as a preventable disease, and it is an accepted belief among physicians that to Dr. Koch, of Berlin, belongs the credit of having first discovered and described a peculiar curved bacillus in the intestinal contents and dejecta of persons suffering from cholera. He claims that this bacillus is diagnostic of true Asiatic cholera. The investigations carried on during the past year have confirmed four of the five claims, concerning this bacillus, that Koch advanced as the result of his investigations of the etiology of cholera in 1884. His fifth claim, that this curved bacillus not only constituted a most valuable diagnostic sign of cholera, but was also the active cause of the disease, has not been wholly substantiated; yet numerous inoculation experiments seem to show the correctness of his view. The recent investigations and experiments of the American commissioner are in accord with all but this latter claim. (For an account of Koch's claims, see *Zymotic Diseases* in the "Annual Cyclopaedia" for 1885.) Emmerich's claim for the etiological power of his Naples bacillus, in the production of cholera, has not borne the test of even his own observations during the past year. Pettenkofer's views, as to the unity of cholera morbus and cholera, have been rejected by almost the entire medical profession. The application of the exact knowledge that has been obtained, as a result of the study of the epidemic of 1886, is

of vast importance as concerns the selection of hygienic and preventive measures. The discovery of the comma-bacillus in the dejecta of a suspected case, points to the existence of Asiatic cholera; and in the light of our present knowledge the failure to apply this crucial test would be little short of criminal negligence on the part of health authorities.

Although recent investigations and research have brought to light hitherto unknown and unconjectured facts, yet almost all the advance has been made in the etiology of cholera, little having been made in our knowledge of its treatment. Experiences with the epidemics of 1884-'86 have not resulted in any improved or more successful method of treatment, and the ratio of deaths to persons attacked remains about the same—one third. That cholera is not directly contagious is now an accepted belief; and that an attack confers a limited immunity is also very probable. While pursuing his investigations in Spain, Dr. Shakespeare made careful inquiries as to the question of immunity, and found that, out of a large number of persons, who had suffered from cholera previously, only a few instances of second attacks were noted, and in most of these there were good grounds for believing that the subsequent attack had been one of cholera morbus, and not true, genuine Asiatic cholera. Communications were sent to every village and town in Spain, where cholera had existed, requesting a reply from the physicians practicing in the towns, to a series of questions bearing upon the disease, the question of immunity being one; and the replies showed that, in the experience of Spanish physicians, there were few instances of individuals having been attacked twice during the same epidemic. Such has also been the experience of those in our own country who have passed through epidemics, no instances of an individual having cholera twice being remembered. Medical men that have had experience with the disease have noticed, that usually a weakened, irritable condition of the intestines is left, often lasting through life; indiscretions in diet, sudden changes of temperature, water, or prolonged muscular exertion, would be followed by severe attacks of diarrhoea or dysentery. It is undoubtedly true that, with proper treatment in the earliest stages of cholera, three fourths of those attacked will recover; and this fact should be borne in mind, and advantage taken of prompt treatment the instant suspicious cases are observed in a community. After the disease has passed into its second stage, treatment does not yield such beneficial results, and in the final stage it is very unsatisfactory. Certain rapid, virulent cases occur, in the treatment of which almost nothing can be done, the patient being overwhelmed with the virulence of the poison. More extended observations during the past year have weakened the confidence that some physicians had expressed in the use

of anti-bacterial agents, and the hopes that had been born of the ether-treatment, and its effectiveness, have also been shattered. A new method of treating the disease has been employed by French physicians, during the epidemic of 1886, with considerable success, but there have not been a sufficient number of cases reported to enable us to express any opinion as to its real value. This treatment consists in painting the abdomen and loins thoroughly with collodion. It is claimed for this that heat is retained, and the abdomen is, as it were, placed in a perfect-fitting splint, and rest thereby secured. The collodion application is also said to prevent the rapid and great loss of the watery elements of the blood.

Treatment by means of ice to the spine, as recommended by Dr. Chapman, of England, has been tried to a considerable extent by physicians in India, no more success following this line of treatment than was observed in the opposite plan. Dr. Chapman recently expressed the opinion that cholera depended to some extent upon a severe nervous disturbance, and that treatment from this standpoint would yield a much more satisfactory result. India physicians, during the past epidemic, have given this treatment a trial, and have reported no increase in the ratio of cures under it.

No sooner had the year 1886 made its appearance, than cholera was announced in the provinces of Girona and Cadiz in Spain. That the disease should appear in these two localities, in opposite portions of the Spanish kingdom, at the same period, is regarded as evidence of the latency of the germ through the cold months. Notwithstanding the terrible lesson these people had received from the ravages of the epidemic in the past, they had failed to profit by it, and the sanitary condition of the country was not in the slightest respect improved; indeed, the condition of many of the towns was worse than in 1885. Quarantine regulations were very deficient, and sanitary cordons were not at all observed. No attention was given to purifying or protecting the water-supplies, the people still drinking water drawn from canals that had been made for the purpose of irrigation. Into these canals the drainage of small towns found its way, and, as they pursued their course through the country, instances of their being used for the purpose of washing soiled linen and clothes were quite numerous. These canals scarcely or never found their way into the larger cities, but traversed the rural districts mainly, and an evidence that they were the means of spreading the disease is shown in the fact, that cholera was more severe in the rural districts. The increased rate of mortality in rural districts has also been noticed in the other countries of Europe and in India. This relatively high rate of mortality in villages is also to be explained by absence of organized hygienic supervision, the miserable construction of the dwellings, in which the people are

crowded together with the domestic animals, and the impossibility of providing extensive and costly water-supplies.

In an official report of the epidemic in Spain, published May 22, 1886, it is said that the epidemic ended in the province of Malaga Jan. 19, in the province of Oviedo Jan. 31, in the province of Salamanca Jan. 17, and in the province of Cadiz March 22. Not a single case has appeared in the whole Spanish Peninsula up to the publication of this report. During this period of 1886, there were 2,000 cases and about 750 deaths from cholera in Spain.

Concerning the value of Ferran's anti-choleric inoculations, the opinions of Spanish physicians are still divided. That they are at least harmless, is beginning to be admitted. The last official commission, appointed by the Spanish Government, to examine the official statistics in their possession, have finally advised the resumption of the inoculations in the event of a recurrence of the disease.

An analysis of the recently published official statistics, collected by the officers of the Government, in the localities where the inoculations were practiced, comprising upward of 30,000 inoculations in 22 villages, having a population of 135,000, proved that only 387 of the inoculated were attacked, and 104 died of cholera; showing that 12 per 1,000 were attacked, and 3 per 1,000 died of the disease. On the other hand, of the population not inoculated, 77 per 1,000 were attacked, and 33 per 1,000 died of cholera. It would appear, therefore, that the inoculations conferred a protection from attack six times greater than that conferred by the measures of hygiene and prevention enforced in the villages, and that the inoculation conferred a protection from death by cholera ten times greater. It should be remarked that in many of these villages two thirds of the whole population were subjected to the inoculation, comprising the poorest class of the inhabitants, and, therefore, those most liable to attack. In such villages the epidemic suddenly came to an end, which appeared to be the result of the inoculation experiments. This sudden termination of the epidemic is in marked contrast with that in other afflicted villages; for an analysis of Dr. Shakespeare's investigations of 361 towns, mainly in this part of Spain, shows that the average duration of the epidemic was 44 days, of which the period of rise was 14 days, that its stationary period was 11 days, while the period of decline lasted 19 days.

Cholera in Italy, as in Spain, was found to be present during the winter months. Later in the year it occurred, more or less extensively, in the provinces bordering the Adriatic from Venice to Brindisi, and penetrated to some extent into the interior, mainly among the northeastern provinces. It is reported that there were upward of 45,000 cases and 14,000 deaths from cholera in Italy during 1886. The Ital-

ian Government during this year relied altogether upon local hygiene and sanitation, with medical inspection, disinfection, and isolation, as internal measures of prevention, having entirely abandoned the establishment of land quarantine and sanitary cordons. They have, however, in a more or less perfunctory manner, enforced a maritime quarantine, at the various Adriatic ports, against all infected places. In reference to the lax enforcement of quarantine by sea, Prof. Paglini, who was appointed by the Italian Government to investigate cholera in Sicily, in his official report severely criticises the manner in which it is conducted.

In France there were a few local epidemics of cholera in 1886, cases occurring in Brittany during the winter and spring months, which were nearly all traceable to introduction by persons or soiled clothing, and to the use of contaminated drinking-water. A case of undoubtedly cholera occurred at Mayence, on the Rhine, but the disease did not spread.

The empire of Austria, bordering on the Adriatic, and threatened by invasion from neighboring infected localities in Italy, has not escaped. At first the epidemic was limited to the port of Trieste, and the town of Fiume, the former having upward of 800 attacked and over 400 deaths. From the coast the disease slowly and irregularly spread to the interior, attacking towns in Dalmatia, invading Buda-Pesth, Prague, and a few other towns in Hungary, a few cases appearing even in Vienna, and the end of the year finds the disease still lingering in this empire.

Recent reports from South America indicate the appearance of cholera in the Argentine Republic.

During 1886 cholera made its most deadly ravages in Corea, Japan and Tonquin have suffered also to a great extent.

In Corea the rapidity of the spread of the disease, and the mortality were almost without parallel, in some cities the inhabitants being swept away by thousands, and some towns being literally depopulated.

The year closes with a decided abatement of the epidemic in Europe, without its complete extinction, and it is hoped that the germs of the disease will not survive the rigors of the winter; but should the difficulties in Bulgaria precipitate a general European war, while the disease still lingers in Austria, it is highly probable that in 1887 it will spread over the whole of Europe, and thus again seriously threaten this country.

CHRISTIAN CONNECTION. An account of the distinctive principles of this denomination, in both its Northern and Southern branches, and of the relations of those branches, was given in the "Annual Cyclopaedia" for 1882.

Statistical reports presented to the quadrennial meeting of the convention in October showed the total number of reported members in the Connection to be 79,266, or 10,000 more than were reported at the preceding meeting.

Estimating for the conferences and churches which had failed to report, and adding the 5,000 members of the colored conferences which were admitted at the present session, the membership would probably amount to 125,000; and if to these be further added the members of the Southern branch, the aggregate of the members adhering to the distinctive principles of the body would be 140,000.

The American Christian Convention met in quadrennial session at New Bedford, Mass., October 6. The Rev. J. W. Osborn, Ph.D., presided. In the reports concerning the business and benevolent concerns of the body, the assets of the Publishing-House were returned at \$36,834, and its liabilities at \$13,378. A reorganization was effected, by the operation of which the Convention and the Publishing Convention were brought into a closer identity. The missionary department reported that it had \$2,382 in cash on hand, of which \$1,100 belonged to the Home Mission fund, and \$1,281, which was in the treasury of the Woman's Missionary Society, to the fund for the establishment of a foreign mission. The Convention decided to begin its foreign missionary work in Japan. The educational institutions of the denomination were represented to be more prosperous than ever before. The colored school at Franklinton, N. C., had sent out eleven ordained colored preachers, and had fifteen students studying for the ministry. The office of General Evangelist was instituted, the incumbent to be a representative of the Convention in corresponding with churches and ministers and visiting the conferences. The North Carolina and Virginia (colored) Conference, having 5,000 church-members, was admitted to the Convention. Much attention was given to the discussion of the proposition for union with the Free-Will Baptist Church. A basis of union had already been drawn up and offered for consideration by a committee meeting in New York (see article "Baptists"), and Christian and Free-Will Baptist Associations in New York and Pennsylvania had agreed upon terms of union. A letter of greeting was received from the General Baptist Assembly of England, expressing sympathy with the movement for union. A deputation was received from the Free-Will Baptists, who presented a paper recognizing the common origin and parallel history of the two denominations and the interest with which the subject of union was regarded by the Free-Will Baptist people. After debate, a committee report was unanimously adopted, in which the greeting of the English General Baptists was responded to; the work which had already been done, and continued efforts for union on the basis of "the Scriptures as our only rule of faith and practice, guaranteeing individual judgment as the right and duty of all," were approved; efforts for union with the Christian Union people of the West were commended, and continued labor for union was pledged. A basis of union which

had been agreed upon with the Christian Union Church of Ohio, having about 20,000 members, was approved as follows: "1. The Bible our only rule of faith and practice; 2. Christ the only head of the Church; 3. Christian character the only test of fellowship; 4. Individual interpretation of Scripture the right and duty of all; 5. The union of all the followers of Christ, without controversy; 6. Each local church to govern itself." The original paper contained a seventh article, disowning the preaching of party politics, protest against which is a prominent feature in the discipline of the Christian Union Church; but the Convention considered this to be a matter for the local church, fully provided for under the sixth article, and its special adoption was waived.

CITIES, AMERICAN, RECENT GROWTH OF. The material for the following articles has been gathered, at our request, by correspondents in the various cities. In some cases it is necessarily imperfect; but it is believed that the whole will give a fair idea of the recent rapid expansion of our American cities. The subject will be continued, with other cities, in the next volume of this "Cyclopædia."

Albany, a city of Albany County, N. Y., capital of the county and State, on the west bank of Hudson river, 145 miles above New York; latitude $42^{\circ} 40'$ north, longitude $73^{\circ} 45'$ west. The population was 69,422 in 1870, 90,758 in 1880. The new Capitol, which will probably cost \$20,000,000, is slowly approaching completion. The new City Hall is deemed one of the most beautiful buildings in the country. A Protestant Episcopal cathedral is in course of erection, to cost, when completed, \$500,000. The river is now crossed by three bridges here, two of which are for railroads only. The West Shore route has been added within a few years to the railroad facilities of the city. Washington Park, containing over 81 acres, has cost the city more than \$1,000,000. Albany was the first city to light all its streets with electricity. Plans are under consideration for substituting the Andrews gang-wells, such as are in use in Brooklyn, for the present method of supplying the city with water by pumping from the Hudson. Among the manufactures recently grown to importance are those of confectionery, shirts, and collars. Following are statistics of some of the most important industries, as reported in 1880:

MANUFACTURES.	Capital.	Value of products.
Foundry and machine-shop products	\$3,070,959	\$2,656,685
Liquors, malt	1,948,600	2,641,600
Boots and shoes	652,545	2,287,616
Malt	1,322,688	1,348,888
Bread and other bakery products	547,185	1,157,959
Clothing, men's	405,541	917,646
Printing and publishing	1,032,500	875,025
Slaughtering and meat-packing	193,000	804,773

The entire amount of capital invested in manufactures was \$14,684,130; the number of employés, 11,785; and the total value of prod-

ucts, \$21,751,009. The total valuation of property was \$33,746,992. The bi-centennial of the city's incorporation was observed July 18-22, 1886, with the most elaborate municipal celebration ever known in this country. See **ALBANY, CELEBRATION AT.**

Allegheny, a city of Allegheny County, Pa., on Allegheny river, opposite Pittsburgh. The population in 1870 was 53,180; in 1880, 78,682; in 1886 it was estimated at 89,500. A new fire-proof library building, now in process of erection, is to cost \$250,000. The total valuation of property in 1880 was \$41,157,496. Following are statistics of the most important industries for that year:

MANUFACTURES.	Capital.	Value of products.
Iron and steel	\$1,776,364	\$2,084,364
Leather, curried	505,000	1,617,000
Leather, tanned	547,500	1,529,745
Foundry and machine-shop products	978,700	1,167,187
Paints	925,000	1,005,788
Cotton goods	596,935	734,250
Liquors, malt	556,000	666,712

The entire amount of capital invested in manufactures was \$8,451,059; the number of employés, 6,471; and the total value of products, \$13,731,792.

Atlanta, a city of Fulton County, Ga., capital of the county and State, 171 miles west by north of Augusta. The population, which was 21,789 (9,929 colored) in 1876, is now estimated at 60,000 (24,000 colored). There are practically eight railroad lines centering in the city, each having extensive through connections and branch-line feeders. The water for fire and sanitary purposes is furnished from water-works near the city; but the drinking supply, which, till lately, has been dependent on private wells, is now drawn from a single artesian well, affording a supply of pure water from a depth of 1,600 feet, all except the first 54 feet being through solid granite, and distributed through pipes, free of charge, to consumers. It is estimated that this well will furnish drinking-water for a population of 300,000. The entire value of property in the city, including the State and Government buildings, is estimated at \$31,670,894. It has been selected as the site for a permanent U. S. military post. The lumber-trade is very large, and is estimated to be doubling itself every year. There are 25 dealers and mill-owners, and the local trade will amount this year to 40,000,000 feet, the foreign to over 50,000,000. Atlanta is headquarters for yellow-pine lumber. There are three cotton factories, and the cotton receipts for the last season amounted to 171,000 bales. Other branches of trade and manufacture are increasing rapidly.

Auburn, a city, and the county-seat of Cayuga County, N. Y., 174 miles, by rail, west of Albany, and two miles north of Owasco Lake; latitude, $42^{\circ} 55'$ north, longitude, $76^{\circ} 35'$ west. The population in 1870 was 17,225; in 1880, 21,924; and in 1886 it was estimated at 26,-

000. A new Government building, to cost \$150,000, is in course of construction. The total valuation of property in 1880 was \$8,-804,449. The following are statistics, for the same year, of the principal manufactures:

MANUFACTURES.	Capital.	Value of products.
Agricultural implements.....	\$1,231,000	\$2,416,075
Woolen goods.....	940,000	1,292,901
Boots and shoes.....	181,800	591,498
Foundry and machine-shop products.....	152,000	299,177

The whole amount of capital invested in manufactures was \$4,423,950; the number of employés, 4,518; and the total value of products, \$7,719,409.

Augusta, a city of Georgia, capital of Richmond County, at the head of navigation on the Savannah river, 132 miles by rail north-north-west of Savannah. The population has increased rapidly in consequence of the erection of extensive cotton-factories. In 1876 it was 15,386; the census of 1885 fixes it at 35,000. The annual cotton-trade amounts to 175,000 bales. Among the industrial establishments, besides the cotton-factories, are flour-mills, fertilizer-manufactories, lumber-mills, cotton-seed-oil factories, an ice-factory, and a cotton-compress. Augusta now ranks third in wealth and population among the cities of Georgia.

Baltimore, the chief city and port of entry of Maryland, on an arm of the Patapsco river, twelve miles from Chesapeake Bay, and 178 miles from the Atlantic, 38 miles by rail northeast of Washington, and 185 miles southwest of New York. The population, 267,354 in 1870, had increased to 332,313 in 1880, and 412,000 in 1886. There are now sixteen public squares in the city, and the parks, Patterson and Druid Hill, contain, respectively, 112 and 93 acres. The churches, of which there were 220 ten years ago, now number 300. Water is supplied by two systems, the Jones's Falls and the Gunpowder river, which furnish about 165,000,000 gallons daily. The Gunpowder system is of more recent construction than the Jones's Falls system, having been begun in 1875 and finished in 1880. It includes Loch Raven, Lake Montebello, and Lake Clifton. Loch Raven and Lake Montebello are connected by a tunnel, nearly seven miles long, having an internal bore of twelve feet and a fall of one foot to the mile, and running 4½ miles through solid rock. Its cost was \$1,779,-610.24. Lake Montebello is the receiving reservoir of the Gunpowder supply. The water passes from it through a twelve-foot conduit 5,410 feet long, to Lake Clifton, a storage reservoir just beyond the city limits. Six distributing mains, each forty inches in diameter, bring the water into the city. The cost of the system was about \$4,500,000. The total storage capacity of the two systems is 2,305,000,000 gallons, and the total cost was about \$10,000,000. Baltimore has fourteen lines of street-cars, ample railroad facilities, and nine

lines of steamers to European ports, while there were but two lines ten years ago. In 1875 the value of imports was about \$27,788,992, and of exports about \$27,616,822; in 1885 the value of imports amounted to \$11,853,317, and of exports to \$45,041,634. In 1884, 38,507 immigrants arrived, and 15,927 in 1885. The depth of the channel has been increased from 17 feet at mean low water to 27 feet, with an average rise of tide of about 18 inches. The number of public schools has risen within the last ten years from 110 to 122, with 880 teachers and 38,036 pupils, and costing from \$650,000 to \$675,000 a year. Two medical schools have been established, making five in all, and one dental college, of which the city now has three. The Pratt Free Library has about 40,000 volumes, and the number is constantly increasing.

Boston, the capital of the Commonwealth of Massachusetts and of Suffolk County, and the chief city of New England, in latitude 42° 21' north, longitude 71° 4' west, at the western extremity of Massachusetts Bay, 213 miles by rail northeast of New York. The population in 1870 was 250,526; in 1880, 362,839; and in 1885, 390,393. The immigrants for the year ending June 30, 1886, numbered 23,950. The assessed value of property in 1875 was \$793,961,895; in 1886 it was \$710,581,700. The total debt on April 30, 1876, was \$43,938,165; in 1886 it was \$43,803,322.

The following table shows the increase in trade during the same period:

ITEMS.	1874-'75.	1885-'86.
Imports.....	\$51,982,226	\$58,480,707
Exports.....	30,866,088	63,428,513
Entrances in foreign trade.....	2,389	2,592
Tonnage of same.....	768,678	1,183,067
Clearances in foreign trade.....	2,189	2,498
Tonnage of same.....	632,878	1,018,911
Entrances in coastwise trade.....	1,117	783
Tonnage of same.....	1,079,488	\$12,590
Clearances in coastwise trade.....	1,608	838
Tonnage of same.....	1,245,208	898,626
Vessels belonging in the district.....	999	763

It should be noted that there is a large number of vessels in the coastwise trade that are not required to report at the custom-house. The number of entrances of steamships in 1885 was 522, with tonnage of 749,924, clearances 438, with tonnage of 622,736. The average weekly sales of wool, reported at about 1,000,000 pounds in 1875, now range from 4,000,000 to 7,000,000 pounds. The annual sales of merchandise have increased in the same time from \$1,200,000,000 to \$1,500,000,000. The industries showing the largest advance in the value of products from 1875 till 1880 are, leather, from \$1,884,745 to \$3,381,156; metallic goods, from \$2,398,588 to \$7,324,458; clothing, from \$16,738,244 to \$19,833,959; machinery, from \$4,223,996 to \$5,950,628. The number of national banks has risen from 53 to 59; the number of savings-banks has fallen from 20 to 15, but the deposits in them have increased from \$70,000,000 to \$86,011,644. Brighton, the great cattle-

mart of New England, has slaughtering and packing establishments with a capacity of 500,000 hogs annually, which furnish a large part of the foreign exports of the city. There are also extensive manufactures of oleomargarine in the same section. The original area of Boston proper, or Old Boston, has been increased from 690 acres to 1,829 by reclaiming flats and widening the Neck. By annexation of suburbs, the city has been further increased, till it now numbers, exclusive of islands, 22,921 acres. The public park system, established in 1875, consists of a chain of parks, 1,042 acres in all, extending from the Charles River Embankment, an esplanade of 10 acres, west of the Public Garden, to Franklin Park, 518 acres, in West Roxbury, and including Bussey Park and Arnold Arboretum, 167 acres, Back Bay, 106 acres, and Riverdale, 110 acres. There are also included in this system Marion Park, at City Point, South Boston, 50 acres, with a pier $\frac{1}{2}$ mile in length, and New Island Park in East Boston, 81 acres. A new court-house was begun in 1885 on Pemberton Square. The Army and Navy Monument, 70 feet in height, with statues and bas-reliefs, standing on the Common, designed by Martin Milmore, was erected in 1877. The church organizations have increased to 220. The new Trinity Church, on Copley Square, is one of the finest church-buildings in the country. It is in the Romanesque style, in the shape of a Latin cross; the extreme length is 160 feet, width, 121 feet; the great central tower is 211 feet high. The cost was \$750,000. The New Old South Church was built in 1875, at a cost of \$500,000. It is in the North-Italian Gothic style, and has a tower 248 feet in height.

The average number of pupils in the public schools was 49,317 in 1875-'76, and 60,823 in 1885-'86; the total expenditure for them was \$2,015,381 in 1875-'76, and \$2,036,469 ten years later; \$362,796 was expended for new school-houses in 1885-'86. A Latin School for Girls was established in 1878. There are about 100 private schools with an attendance of about 7,250. The Public Library, which contained about 300,000 volumes ten years ago, now has over 460,000 and 115,000 unbound pamphlets, besides manuscripts, engravings, and periodicals in the reading-room. The new Library Building, on Dartmouth and Boylston Streets, was begun in 1886. The number of volumes in the Boston Athenaeum has increased from about 100,000 to over 150,000. New theatres are the Park, 1879, and the Hollis Street, 1885. The last-named occupies the site of the historic Hollis Street Church, dating from 1752.

Binghamton, a city, capital of Broome County, N. Y., at the junction of the Chenango and Susquehanna rivers, 142 miles by rail west-southwest of Albany; latitude 42° 7' north, longitude 75° 56' west. The population was 12,692 in 1870, 17,317 in 1880, and 22,040 in 1886. It is on the main lines of the Erie,

Delaware and Lackawanna, and Syracuse, Binghamton and New York Railways, and is the terminus of the Utica and Chenango Valley and the Albany and Susquehanna. The Chenango Canal is now abandoned. Water-power for manufacturing purposes is obtained from both the Susquehanna and Chenango rivers. Among other manufactures, that of cigars has grown rapidly, so that the city now ranks among the leading cities of the country in this industry. During the year ending June 30, 1886, 79,330,976 cigars were manufactured there. Four street-railways are in operation; there are 9 public schools, 18 churches, 7 banks and 3 daily newspapers. A new State Armory has been erected and the building formerly in use as the State Inebriate Asylum has been enlarged and made a State Asylum for the Chronic Insane.

Bridgeport, a city, and one of the capitals of Fairfield County, Conn., on Long Island Sound, at the mouth of Pequonnock river, 59 miles by rail northeast of New York; latitude 41° 10' north, longitude 73° 11' west. The population, 18,969 in 1870 and 27,643 in 1880, has increased by annexation and otherwise to 40,000 or more. There are five national and four savings banks, with a united capital of \$5,500,000. There are 28 churches, a hospital, an orphan asylum, and a system of associated charities; also a free public library and reading-room, with about 12,000 volumes. The public-school system includes a high-school; and there are three public parks, the finest of which is Seaside Park. The total valuation of property was \$11,720,503 in 1880. The most important manufacturing industries in 1880 were:

MANUFACTURES.	Capital.	Value of products.
Foundry and machine-shop products.....	\$222,726	\$486,185
Cutlery and edge tools.....	213,000	443,800
Shirts.....	112,950	442,490
Springs, steel, cast and carriage.....	65,250	351,341
Hardware.....	261,850	324,876

The whole amount of capital invested in manufacturing was, \$9,751,785; the number of hands employed, 7,508; and the value of products, \$10,458,212.

Brockton, a city of Plymouth County, Mass., twenty miles south of Boston, on the main line of the Old Colony Railway; latitude 42° 8' north, longitude 72° 1' west. It was originally known as a part of Duxbury plantation or Sackett, afterward as a part of Bridgewater and as North Bridgewater. The name was changed to Brockton in 1874. It was made a city in 1882. The population in 1870 was 8,007; in 1880, 13,608; in 1886, 22,000. The principal industry is the manufacture of boots and shoes, especially men's shoes. There are about 90 manufactures, with 5,000 employés, whose annual wages amount to \$2,500,000. The value of the manufactures amounts to \$10,000,000. Other industries are the manufacture of machinery, boxes, sewing-machine needles, furni-

ture, lasts, dies, and shoe machinery and tools. Brockton has 3,330 dwellings, 15 business blocks of brick, a public library of 11,000 volumes, 15 churches, 3 banks, 3 newspapers, two of which are dailies, and a street railroad with nine miles of rails. In the town are valuable deposits of fine granite, which as yet have been only partially worked. The total valuation of property in 1880 was \$5,977,488.

Brooklyn, a city and the capital of Kings County, N. Y., on the west end of Long Island, opposite New York city, from which it is separated by East river; latitude $40^{\circ} 41' \text{ north}$, longitude $73^{\circ} 59' \text{ west}$. The population was 396,099 in 1870, of whom 144,718 were foreigners; and in 1880, 566,663, of whom 177,694 were foreigners. Very recently the city limits have been extended to take in the town of New Lots, thus largely increasing the area and population, which latter is now estimated at 725,000. In connection with Prospect Park has been laid out and completed a number of boulevards 200 feet wide leading to it from various directions. The Concourse at Coney Island, covering an area of 70 acres and having a beach-front of 750 feet, is under the control of the Brooklyn Park Committee. The city and the county are jointly interested in it. The most important public work of recent years is the East River Bridge, which was formally opened May 24, 1883. (See EAST RIVER BRIDGE, under ENGINEERING, in the "Annual Cyclopædia" for 1883.) An elevated railroad runs from Fulton Ferry to the end of the bridge, and from that point to East New York. A steam-dummy road runs on Third Avenue from Greenwood to Fort Hamilton. Four steam-railroads and one horse-car line run from within the city limits to Coney Island. The total length of horse-railroads is 151 miles (1880). The number of churches has increased from about 260 to 306, and the 48 public schools to 66. Seven daily and 14 weekly newspapers are published in the city, as well as 11 monthly and 2 semi-monthly periodicals. The Brooklyn Library, formerly the Mercantile, now numbers 90,000 volumes. The Young Men's Christian Association also has a fine library. Two new theatres have been built within the last ten years. The extensive Erie and Brooklyn Basins, on Gowanus Bay, are completed. The value of merchandise (chiefly molasses, sugar, grain, coffee, oil, hides, and wool) annually stored between Red Hook Point on the south and Main Street on the north is estimated at \$300,000,000. There are 12 national and State banks and 13 savings-banks. On January 1, 1886, the latter had deposits amounting to \$79,278,297; the number of depositors was 214,483. The water-supply has been added to by wells driven between Hempstead and Jamaica, and the number of pumps is constantly increased. The total valuation of property in 1880 was \$232,925,699. Although many of its inhabitants find employment in New York, Brooklyn ranked in 1880 as the

fourth city of the country in manufactures, while in population it was the third. The following table presents statistics of some of the principal industries:

MANUFACTURES.	Capital.	Value of products.
Sugar and molasses, refined.....	\$10,946,000	\$59,711,168
Slaughtering and meat-packing.....	1,125,000	8,010,492
Foundry and machine-shop products.....	4,079,250	6,984,582
Bread and other bakery products.....	1,020,375	5,694,975
Paints.....	2,602,800	6,284,201
Varnish.....	716,500	874,655
Carpentering.....	1,229,678	5,124,407
Drugs and chemicals.....	8,449,650	4,900,838
Patent medicines and compounds.....	55,000	730,046
Liquors, malt.....	8,888,500	4,871,772
Cordage and twine.....	2,566,700	3,915,566
Clothing, men's.....	932,445	2,937,262
Flouring- and grist-mill products.....	662,500	2,896,508
Cooperage.....	918,700	2,512,741
Tobacco, chewing, smoking, and snuff.....	1,059,890	2,802,708
Tobacco, cigars, and cigarettes.....	276,590	977,450
Ship-building.....	768,050	1,999,788
Hats and caps (not including wool hats).....	538,915	1,978,145
Lumber, planed.....	676,500	1,707,821
Boots and shoes.....	311,885	1,819,998
Boxes, wooden packing.....	998,500	1,767,640
Leather, dressed skins.....	691,650	1,755,144
Stamped ware.....	870,000	1,656,829
Printing and publishing.....	889,254	1,549,748

The whole amount of capital in manufacturing was \$61,646,749; the number of employés, 47,587; and the total value of food-products, \$177,223,142.

Buffalo, a city, port of entry, and the capital of Erie County, N. Y., at the eastern extremity of Lake Erie, at the head of Niagara river, and at the mouth of Buffalo creek; 422 miles by rail west of New York city; latitude $42^{\circ} 53' \text{ north}$, longitude $78^{\circ} 52' \text{ west}$. The population in 1870 was 117,714, of whom 46,237 were foreigners; in 1880, 155,184, of whom 51,268 were foreigners. Very many of the streets are paved with asphalt, and there are four public parks connected by eighteen miles of boulevard. Nineteen railroads enter the city, and the railroad-yard facilities are unequalled. Four steamboat lines afford regular communication between this port and other ports on Lakes Erie, Huron, Superior, and Michigan, using 56 first-class steamers, with capacity ranging from 1,750 to 2,800 tons. The number of pupils in the public schools was 15,875 in 1876, and in 1886, 28,372. The number of volumes in the Grosvenor Free Reference Library has increased in the same time from 20,000 to 32,000 volumes, and the Circulating Library of the Young Men's Association from 30,000 to over 53,000. The Historical Society has over 7,000 volumes, and there are in all 14 public libraries and reading-rooms. The 95 churches have increased to 120. The value of imports from Canada for the year 1874-'75 was \$2,499,004, and of exports to Canada \$766,945. For the year 1885-'86 the imports from Canada amounted to \$5,901,772, and the exports to \$349,860. The receipts of grain and flour were nearly 74,250,000 bushels in 1875, and 90,000,000 in 1886. The total valuation of property in 1880

was \$83,910,533. Following are statistics of the principal manufactures in that year:

MANUFACTURES.	Capital.	Value of products.
Foundry and machine-shop products	\$8,080,918	\$3,577,029
Slaughtering and meat-packing	872,500	2,441,250
Glucose	1,750,000	3,075,000
Clothing, men's	1,090,900	2,747,475
Flouring- and grist-mill products	940,000	2,251,848
Malt	1,842,000	2,002,838
Leather, tanned	1,977,000	1,757,600
Liquors, malt	1,859,975	1,636,020
Lumber, planed	1,188,000	1,219,406
Soap and candles	579,000	1,176,840
Boots and shoes	490,146	1,063,296

The whole amount of capital invested in manufacturing was \$26,847,937, the number of employés 18,021, and the value of products \$42,937,701.

Cambridge, a city, and one of the shire towns of Middlesex County, Mass., latitude $42^{\circ} 23'$ north, longitude $71^{\circ} 7'$ west, directly adjacent to the city of Boston on the west, and separated from it by the Charles river, which is spanned by six bridges, with a seventh proposed, to cost \$425,000. Founded in 1631, and originally called Newe Towne, Cambridge became a city in 1846, with a population of something less than 15,000; in 1870 it had 39,634; in 1880, 52,669; and in 1885, 59,660. The city has 82 miles of streets; the sewerage has been much improved in recent years. There are 33 public schools, six banks, and four weekly newspapers. The streets are lighted with gas and electricity, and a horse-railway uses 40 miles of track. Prominent among the business establishments are the Riverside and University presses, and a noted telescope-manufactory. The total valuation of property in 1880 was \$49,235,098. The principal manufactures were as follow:

MANUFACTURES.	Capital.	Value of products.
Slaughtering and meat-packing	\$560,500	\$7,179,625
Soap and candles	375,500	1,958,604
Printing and publishing	813,200	785,443
Bookbinding and blank-book making	144,000	202,455
Musical instruments, organs, and materials	593,000	788,222
Musical instruments, pianos, and materials	54,200	161,900
Furniture	275,000	615,191
Bread and other bakery products	121,600	579,856
Foundry and machine-shop products	187,734	509,326

The whole amount invested in manufacturing was \$6,480,799, the number of employés 7,543, and the total value of products \$26,605,688.

Camden, a city, and the capital of Camden County, N. J., in latitude $39^{\circ} 57'$ north, longitude $75^{\circ} 7'$ west, on a plain on the Delaware river, opposite Philadelphia, with which it is connected by ferries. The population in 1870 was 20,045; in 1880, 41,656. It is a terminal point of four railroads. It has a fine new courthouse, three national banks, and two hospitals. The total valuation of property in 1880 was \$11,566,085. The principal manufacturing industries were:

MANUFACTURES.	Capital.	Value of products.
Foundry and machine-shop products	\$815,000	\$1,298,050
Woolen goods	570,000	754,500
Drugs and chemicals	800,000	751,613
Ship-building	454,400	485,576
Lumber, sawed	445,000	307,900
Boots and shoes	23,415	240,975

The whole amount of capital invested in manufacturing was \$5,032,835, the number of employés 4,370, and the total value of products \$7,644,705.

Charleston, the chief port and largest city of South Carolina, capital of Charleston County, on the peninsula at the confluence of the Ashley and Cooper rivers, 100 miles south-southeast of Columbia and 82 miles northeast of Savannah; latitude $32^{\circ} 45'$ north, longitude $79^{\circ} 57'$ west. The population was 56,540 in 1875; in 1880, 49,984; and about 60,000 in 1886. The ship-channel over the bar formerly had 16 feet of water at ebb; but this depth has been materially increased by the construction of jetties, springing respectively from Sullivan's Island and Morris Island. When they are completed it is believed that a channel will be formed showing a depth of 26 feet. The city suffered greatly from the effects of a cyclone in 1885; and in August, 1886, it was visited by a severe earthquake. About 40 persons were killed by the falling buildings, and the loss of property within the corporate limits is estimated at \$5,000,000. The value of imports and exports has materially increased in recent years.

Chelsea, a city of Suffolk County, Mass., latitude $42^{\circ} 25' N.$, longitude $71^{\circ} W.$. It is separated from Charlestown on the southwest by the Mystic river, there crossed by a long bridge, from East Boston by Chelsea creek, and connected with Boston proper by the Eastern Division of the Boston and Maine Railroad. Two lines of horse-cars enter the city. Originally a part of Boston, it was set off in 1739, and became a city in 1857. The population was 18,547 in 1870, 21,782 in 1880, and 25,709 in 1885. The largest industries in 1880 were the manufacture of foundry and machine-shop products, with \$516,000 capital and \$464,000 worth of products; curried leather, \$53,300 capital, \$793,263 worth of products; cotton goods, \$405,000 capital, \$511,340 worth of products; tobacco, cigars, and cigarettes, \$84,950 capital, \$110,284 value of products. The entire amount of capital invested in manufacturing was \$1,822,250, the number of employés 1,647, and the total value of products \$3,846,250.

Chicago, the principal city of Illinois, capital of Cook County, the commercial metropolis of the Northwestern States, on the west shore of Lake Michigan, 18 miles north of its extreme southern point; latitude $41^{\circ} 50'$ north, longitude $10^{\circ} 33'$ west from Washington. The population in 1870 was 298,977, including 144,557 foreigners; in 1880 it was 503,185, including 204,859 foreigners; estimated by the school

census in 1886, it was 703,461. In 1876 there were four trunk lines, furnishing communication with the East, and six with the West; two running southward to the Gulf of Mexico and the Southwestern States, and two northward to the Lake Superior region. In 1886 there were eight lines to the East, five to the West, six to the Southeast, South, and Southwest. Three of the great railway systems reaching West from Chicago embrace from 4,000 to 5,000 miles of line each, and the aggregate mileage of the roads having termini at Chicago, including nothing east of Pittsburg, is nearly 30,000 miles, or one fourth of the railway mileage of the country. The harbor has recently been further improved by the construction of a new breakwater, built by the Government at a cost of over \$1,000,000. The 24 miles of improved water-frontage on the river and its branches have been increased to 30 miles. The facilities for street-travel are improved by the addition of cable-cars traversing the North and South Divisions of the city. In 1876 there were sixteen national banks, with resources to the amount of \$41,364,479, capital stock and surplus \$12,027,500, and deposits \$25,687,802. Other commercial banks had an aggregate capital of about \$5,000,000, and deposits probably exceeding \$7,000,000. There are now fourteen national banks, with resources to the amount of \$96,000,000, capital stock and surplus \$15,000,000, and deposits \$67,000,000. Other commercial banks have an aggregate capital of about \$10,000,000, and deposits probably exceeding \$15,000,000. The public schools have increased in number in ten years from 41 to 60, occupying 82 buildings; the number of teachers from 700 to 1,195; the number of pupils enrolled from 49,121 to 76,044, and the total expenditure from \$827,503 to \$1,537,172, \$924,229 of which is for teachers' wages. There are now three high-schools, and also night-schools for those who can not attend by day. The number of newspapers and periodicals published in the city has risen from about 120 to about 400, ten of which are dailies. Ten years ago there were about 250 churches; there are now about 350. The County Hospital affords room for 800 patients. The city and county have built a court-house and city-hall of granite and marble, two connected buildings of the same design, at a cost of \$3,000,000 each. A Board of Trade Hall, begun in 1880, was finished in 1885, at a cost of \$1,700,000. In the neighborhood of this hall twenty great office-buildings were built between 1880 and 1886, averaging eight stories in height, and costing from \$300,000 to \$1,250,000 each. In 1875 the valuation of property for the purpose of taxation was \$293,188,950, the tax levied thereon \$5,123,905, and the bonded debt of the city \$13,456,000. In 1885 the valuation of property was \$139,958,288, the tax \$5,152,515, and the debt \$12,695,500. The value of duty-paying goods imported in 1875 was \$3,844,884, in 1885 it was \$8,624,117. In 1875 there were 17 elevator ware-

houses, with an aggregate capacity of 15,250,000 bushels; there are now 29, with a capacity of 27,025,000 bushels. The number of pork-packing firms has increased from 32 to 40. In the year ending March 1, 1886, they packed 4,928,780 hogs—about 50 per cent. of the pork-packing in the entire Mississippi valley. The value of the live-stock receipts in 1875 was estimated at \$117,533,941, and in 1885 at \$173,598,002. Live-stock arrivals averaged, during the last named year, 600 car-loads a day. The Union Stock-Yards cover 350 acres, 275 of which are roofed. In the winter, 25,000 men are employed at the stock-yards in receiving, preparing, packing, and shipping. A single firm uses 23 acres of floor-space. The fresh-beef trade has grown rapidly in the last four years. The number of cattle slaughtered for the refrigerator-car trade in 1885 was 1,334,775. The entire annual value of manufactured products has risen from \$150,000,000 to \$370,000,000. The following table shows the advance in the quantity of the receipts of some leading articles of trade:

ARTICLES.	RECEIPTS.	
	1875.	1885.
Flour, barrels.....	2,625,888	5,985,722
Wheat, bushels.....	24,206,370	18,909,717
Corn, bushels.....	28,341,150	62,980,597
Oats, bushels.....	12,916,428	87,675,758
Rye, bushels.....	699,583	1,892,760
Barley, bushels.....	8,107,297	10,760,127
Total, reducing flour to wheat, bushels.....	81,057,302	156,405,223
Lard, pounds.....	21,982,423	64,291,566
Butter, pounds.....	21,563,991	92,474,784
Wool, pounds.....	49,476,091	45,863,865
Hides, pounds.....	52,357,244	67,928,548
Seeds, pounds.....	78,885,230	73,518,821
Salt, barrels.....	706,588	1,504,466
Coal, tons.....	1,641,984	8,978,675
Cattle, number.....	920,948	1,905,518
Hogs, number.....	8,912,110	6,970,255

Cincinnati, the chief city of Ohio, capital of Hamilton County, on the north bank of the Ohio river, 466 miles below its head at Pittsburg, 500 miles above its mouth, and 390 miles (direct) west of Washington; latitude 39° 6' north, longitude 84° 27' west. The population in 1870 was 216,239, of whom 79,612 were foreigners; in 1880 it was 255,189, of whom 71,659 were foreigners. The public schools had 28,999 pupils in 1875, and in 1885, 36,301 besides an average attendance in night-schools of 2,009. There are also more than 100 Roman Catholic parochial schools. There are at present 8 medical colleges, a law-school is maintained by Cincinnati College, and an art-school amply endowed is connected with the Cincinnati Museum. A college of music with a fine endowment has also been established, and has a fine building. The Public Library has grown in ten years from 62,000 to 148,000 volumes, and that of the Young Men's Mercantile Library Association from 35,500 to 50,000. The number of daily papers has increased from 8 to 14, and of weekly from 37 to 65; and there are 190 churches to the 160 of ten years ago. A third railroad-pier bridge across the

Ohio is under contract, and 24 lines of railroad radiate from the city, while ten years since there were but 15. There were 6 national banks, with an aggregate capital of \$4,400,000, and 17 private banks and banking-houses, with a capital of \$2,385,000. There are now 13 national banks, capital \$9,600,000, and 7 private banks, capital \$1,513,000. The assessed value of property in 1875 was \$184,498,565; in 1885 it was \$170,086,968. The disbursements of the city government in 1875 were \$3,865,274, including interest which amounted to \$900,566; the revenue, \$4,186,570; the bonded debt, Jan. 1, 1876, was \$17,325,500. In 1885, the disbursements were \$5,047,858.90, including interest, \$1,694,956.23; the revenue was \$5,866,524.33; the bonded debt, Oct. 1, 1886, was \$25,940,707.25. The following table shows the value of some important manufactured products in 1875 and 1885:

PRODUCTS.	VALUE.	
	1875.	1885.
Iron	\$16,088,835	\$9,919,260
Leather	7,570,175	4,268,590
Boots and shoes		6,328,912
Soap, candles, and oils	9,919,143	10,263,000
Liquors	23,040,267	29,468,071
Paper	2,213,887	5,154,440
Printing and publishing	6,200,454	5,114,060
Tobacco	4,198,177	9,367,750
Carriages, etc.	2,128,262	9,161,492
Clothing	18,896,900	17,169,111

In 1875 about 61,000 hands were employed; in 1885, about 91,000. The table below gives statistics of the receipts of important articles:

ARTICLES.	RECEIPTS.	
	1874-'5.	1884-'5.
Iron and steel	\$6,882,214	\$12,499,317
Leather	1,527,518	1,402,082
Lumber	2,019,350	4,950,500
Sheep	1,299,880	2,020,512
Sugar	5,828,385	4,671,658
Tobacco	14,116,740	15,049,900
Whisky	19,388,074	12,371,377
Coal	3,185,127	4,495,548

Clarksville, the capital of Montgomery County, Tenn., 40 miles northwest of Nashville, on the north side of the Cumberland river, at the mouth of Red creek, the head of navigation in the dry season. It is on the Louisville and Nashville system of railway, and is now the southern terminus of the Indiana, Alabama, and Texas Railway, a projected road from Evansville, Ind., to Birmingham, Ala. The population is 8,000. It is the seat of the Southwestern Presbyterian University. There are also three seminaries for girls, and a system of public schools. There are street-railways, a system of water-works, and gas and electric lights. A small amount of manufacturing is done, but the city is noted as a great tobacco-market. It is in the center of that part of Kentucky and Tennessee known as "the Clarksville tobacco-district." In the sale of natural leaf it ranks as the second tobacco-

market in the world, and the first in the sale and shipment of export tobacco. There are seven large warehouses for the sale, and six stemmerys where the leaf is made into strips for direct shipment to European ports. These establishments will handle about 90,000,000 pounds the present year. The Tobacco Exchange is one of the finest buildings in the State.

Cleveland, a port of entry and the capital of Cuyahoga County, Ohio, the second city in size and importance in the State, on the southern shore of Lake Erie, at the mouth of Cuyahoga river, latitude $41^{\circ} 30'$ north, longitude $81^{\circ} 46'$ west, 120 miles northeast of Columbus, 225 miles northeast of Cincinnati, and 170 miles southwest of Buffalo. The population in 1870 was 92,829, of whom 38,815 were foreigners; in 1880 it was 160,146. The police census of 1886 shows a population of 214,013, while the directory canvass for the same year, which takes in the suburbs, the census being confined to the corporate limits, places the number at 238,953. The present entrance to the river has been extended by two piers 200 feet apart, stretching several hundred feet into the lake. A breakwater, just west of the river's mouth, the cost of which was \$1,200,000, incloses 180 acres of water. This is to be extended eastward of the entrance to the river. There are 34 improved public docks, with a frontage of 2,415 feet and 82 unimproved public docks, with a frontage of 2,071 feet. The river and the two runs flowing into it, are crossed by 9 city swing- or draw-bridges, 10 railroad swing- or draw-bridges, and 40 stationary bridges, city and railroad. The most important of these is the Viaduct, 3,211 feet long, begun in 1874 and finished in 1878, at a cost of \$2,250,000. In 1886 was begun the Central Viaduct, 2,838 feet long. Another is to be built, 1,092 feet long, over Walworth Run, to the west side of the city, making altogether a belt elevated roadway, connecting the three divisions of the city. Still another elevated roadway, finished in 1886, is the Kingsbury Run Viaduct, 835 feet long. The total area of the city parks is 93 acres, and plans are under consideration for additional parks. In Lake View Cemetery, on Euclid Avenue, a monument has been built to President Garfield. Adelbert College, of Western Reserve University, was removed to Cleveland from Hudson, O., in 1882, on a conditional gift of \$500,000 from Amasa Stone, one of the conditions being the adoption of the name Adelbert, that of his dead son. It occupies an elevated position on Euclid Avenue, near the fine building of the Case School of Applied Science, founded on a bequest by Leonard Case, Jr., of landed property valued at \$1,250,000, which, by increase in value and subsequent bequests, has risen to an estimated value of over \$1,500,000. The Cleveland Manual Training-School was built and equipped in 1886 by a corporation of

business men. The Cleveland Medical College is a large and handsome brown-stone building, built in 1885 at a cost of \$150,000, the gift of J. L. Woods, on the site of the old building. The number of volumes in the Public Library has increased in about ten years from 24,000 to 48,000. The Case Library has 20,000 volumes. The number of churches has increased from about 125 to 150. Two new theatres were built in 1886, 10 or more railroad lines enter the city, and 13 regular lines of steamers connect Cleveland with other ports on the Great Lakes. Five of the lines of railroad lead directly to the bituminous coal-fields of the State. In 1876 there were six national banks, with an aggregate capital of \$4,550,000; there are now nine, with capital of \$6,581,700. There are 19 banks in all, and the total banking capital is about \$20,000,000. There were about 20 newspapers published, 5 with daily editions. There are now 8 daily, 3 tri-weekly, 47 weekly, and 28 monthly and quarterly publications. The receipts of bituminous coal amount to about 2,000,000 tons annually, more than one fourth of which is shipped to lake-ports, and about 120,000 tons of anthracite are brought from Pennsylvania. About 1,000,000 tons of iron-ore, mostly from Lake Superior mines, is received annually, and about 80,000 tons of pig-iron. There are 150 establishments manufacturing iron and steel in some form, employing about 18,000 persons, the capital invested being \$22,000,000, and the annual product about \$35,000,000. In 1876 the value of all manufactured products was placed at \$25,000,000 or \$30,000,000. The annual receipts of lumber average 350,000,000 feet. There are 20 oil-works, including those of the Standard Oil Company, whose headquarters are in Cleveland. There are five ship-yards for the manufacture of wood and steel vessels, and the city has a larger amount of tonnage registered than any other port on the lakes.

Columbus, a city, capital of Ohio and of Franklin County, on the Scioto river just below the mouth of the Olentangy, in the center of the State, 120 miles by rail northeast of Cincinnati, at the intersection of the 40th parallel and the 83d meridian. The population in 1870 was 31,244; in 1880 it was 51,647 and in 1886, estimated by the school census, it was 76,000. Fifteen railroads enter the city. A Government Building for court-rooms, post-office, and other Government offices, is in process of erection, the appropriations for it already exceed \$300,000. The State Agricultural Society has recently purchased nearly 100 acres within the city limits which it is laying out for fair-grounds and upon which permanent exhibition buildings are in process of erection. There are now two medical colleges and an art-school. The manufactures of the city are increasing. Prominent among them are the iron and steel manufactures, and those of agricultural implements and buggies.

Covington, a city, one of the seats of justice of Kenton County, Ky., and the second city in the State, is situated on the Ohio river, opposite Cincinnati, and immediately below the mouth of the Licking, which separates it from Newport. The population in 1875 was 24,505; in 1880 it was 29,720; and Jan. 1, 1886, it was estimated at 34,872. The Chesapeake and Ohio Railroad Company has begun building a bridge over the Ohio river at Covington, which will give it a continuous route from Newport News to Cincinnati. The Elizabethtown, Maysville, and Big Sandy Railroad Company has begun a track from Ashland, connecting with the Chesapeake and Ohio, with the intention of bridging the Licking at Newport, and passing through Covington to Cincinnati. The present Holly system of water-works by which water is pumped from the river in front of the city, is to be abandoned; the citizens have voted to issue \$600,000 of bonds for the purpose of building works and a reservoir about nine miles up the river in order to secure purer water. Fine fair-grounds have been laid out near the city, which has also a new post-office and a new jail. Street-railways connect the city with Cincinnati over the long wire suspension-bridge, and with Newport over the truss-bridge. There are in the city five banks with an aggregate capital of \$2,200,000, three newspapers, 32 churches, and 8 public, 12 Catholic parochial, and many private schools. The taxable property is assessed at \$15,646,525. Among the manufactories are 2 rolling-mills, 14 tobacco-factories, 48 cigar-factories, 15 carriage and wagon factories, 3 breweries, 6 distilleries, and glass-works.

Dayton, a city, and the capital of Montgomery County, Ohio, on Great Miami river at the mouth of Mad river, 60 miles by rail north-northeast of Cincinnati; latitude 39° 44' north, longitude 84° 11' west. The population in 1875 was 30,473; it is now 45,000. The capital invested in manufacturing business amounts to \$8,000,000, and 10,000 hands are employed, with a product of \$15,000,000 per annum, chiefly in railway-cars, bridges, mill-machinery, farm-implements, and the products of many paper-, oil-, and grain-mills, foundries, machine-shops, wood-working establishments, and 300 other shops. In addition to the water-power formerly sufficient for manufacturing purposes, steam is now largely employed. There are five national banks and one savings-bank, with an aggregate capital of \$1,600,000; the banking resources are \$5,600,000; eight insurance companies have paid-up capital amounting to \$1,200,000. Seven railways with their branches have stations in the city, besides the three steam-roads to the Soldiers' Home, and there are four street-railroads. The two rivers, Wolf creek, and the Miami Canal are spanned by iron and stone bridges. There are fifteen public schools, with an average daily attendance of 7,600, and parochial

and private schools have 2,100 more. Four daily and 22 weekly newspapers are issued from offices in the city and there are about 60 churches, a library building, a court-house, a jail, and five large market-houses. A State Insane Asylum is located one mile south of the city, and the National Soldiers' Home, with 5,000 inmates, occupies about 640 acres of land four miles west.

Denver, the chief city of Colorado, capital of the State and of Arapahoe County, on South Platte river, 15 miles east of the foot-hills of the Rocky mountains, and 5,203 feet above the level of the sea; latitude $39^{\circ} 44'$ north, longitude $105^{\circ} 4'$ west. In 1858 the place was uninhabited; in 1870, the population was 4,759; in 1880, 35,629; in 1885, 54,308; and in 1886 it was estimated at 75,000. The rapid growth of the city, as well as of the State, is largely due to the immense mineral resources of the region. It is, besides, a resort for invalids, the climate being especially beneficial in pulmonary diseases. The city is substantially and handsomely built. The Opera-House block cost about \$800,000, and the Court-House \$350,000. Appropriations for the Custom-House and Post-Office, now in process of erection, amount to \$750,000. Foundations are just laid for a State Capitol, for which \$1,000,000 have been appropriated. Other buildings, the cost of which is estimated at more than \$3,000,000, are now in progress. There are six national and several private banks, a United States Mint, numerous churches, and seven public schools. Many of the artesian wells afford mineral water, notably the Court-House well, 933 feet in depth. Six railway lines connect the city with other parts of the continent. The commercial, manufacturing, and cattle interests are rapidly advancing. There are four immense smelting establishments. The Denver, South Park, and Pacific Railroad connects the city with Leadville, another city of remarkably rapid growth, situated in a great mining district. It is but ten years of age, and has a population of 10,925. The product from its silver-mines amounted in one year to about \$10,000,000, and the mining products of two smelters in Denver to \$12,000,000.

Des Moines, a city and the capital of Iowa, in Polk County, at the head of steam navigation on Des Moines river, at its junction with the Raccoon, 357 miles by rail west of Chicago; latitude $41^{\circ} 35'$ north, longitude $93^{\circ} 40'$ west. The population, in 1875, was 14,443; in 1880, 22,408; in 1885, 32,469. The daily papers have increased from three to five, the weekly or monthly publications from 7 to 26, the 20 churches to 45. Water-works were constructed in 1871. The public district and high-schools, Drake University, Des Moines University, and Callanau College for young ladies, furnish facilities for education, and there are a City, Public, and a State Library. Fifteen railroads or branches have stations in the city. Coal abounds in the vicinity, and mining and

manufacturing are largely carried on, the mines alone employing about 2,000 persons. Among the manufacturing establishments are starch and glass factories, and a very large distillery. Pork-packing is also an important industry.

Detroit, a port of entry and the chief city of Michigan, capital of Wayne County, on the northwestern side of Detroit river, about 20 miles from Lake Erie, 7 miles from Lake St. Clair, and 250 miles east by north of Chicago; latitude $42^{\circ} 20'$ north, longitude $82^{\circ} 3'$ west. The population, in 1870, was 79,577, including 35,381 foreigners; in 1880, it was 116,340, of whom 45,645 were foreigners; in 1886, it was estimated at 219,192. Considerable territory was added to the city, in 1885, by the annexation of suburbs. Twelve railroads center in the city, and steamers run to all the lake-ports. Warehouses, factories, and other business buildings line almost the entire river-front of seven miles. A bridge, to cost \$300,000, is in process of construction, to connect with the city the principal park, Belle Isle, on an island in the middle of the Detroit river, containing about 700 acres. A boulevard, partly finished, is designed to form a crescent, 9 miles long and 150 feet wide, leading from this bridge around the city. An appropriation has been made and land bought for a Government building, to cost \$1,000,000. The total value of new buildings erected in 1885 was \$3,103,873. The assessed valuation of the city, July 1, 1886, was \$133,448,580; the net debt, \$36,490. The number of daily newspapers is eight, the same as it was ten years ago, but the other periodicals published have increased from about 12 to 46, the churches from 75 to 139. There are 92 schools and colleges, with 30,296 pupils. Ten years ago the public schools had about 13,000 pupils. The foreign commerce is mostly with Canada. The following table shows the increase in trade:

ITEMS.	For the year ending June 30, 1875.	For the year ending Sept. 30, 1886.
Imports	\$1,329,826	\$3,070,849
Exports.....	\$2,851,766	\$4,283,810
		For the year ending Dec. 31, 1885.
Entrances.....	4,197	5,390
Tonnage of entrances.....	973,886	1,014,749
Clearances.....	4,166	5,400
Tonnage of clearances.....	972,475	1,022,977
Vessels enrolled in the district	852	298
Tonnage of same.....	83,505	98,889

In the latter year the receipts of grain were 13,059,032 bushels; the shipments, 9,309,319 bushels; 346,718 loaded cars crossed Detroit river, having an estimated tonnage of 4,160,616. The capital employed in the iron industry has increased in about ten years from \$4,000,000 to \$5,000,000. Detroit is the largest center in the world for the following manufacturers: Railroad-cars, annual product, \$6,000,000 to \$7,000,000; stoves, annual product, \$2,500,000; pharmaceutical supplies; and emery-wheels. Tobacco is largely manufact-

ured, and there are also saw-mills, flour-mills, breweries, distilleries, malt-houses, brick-yards, tanneries, copper-smelting works, and other important industries.

Dubuque, a city and port of delivery, capital of Dubuque County, Iowa, on the Mississippi river, opposite the boundary-line between Illinois and Wisconsin, 440 miles by river above St. Louis, and 185 miles by rail west-northwest of Chicago. The population in 1880 was 22,254; in 1885, 26,330. An inclined-plane cable-railway has been built to one of the bluffs, on which some of the finest dwellings are situated. A new bridge is now in process of construction, to be 76 feet above low-water mark and 2,000 feet long, and to cost \$125,000. Public schools, including a high-school, are maintained at an annual cost of \$55,000. Water is supplied by water-works and artesian wells. The railroad and lumber companies recently expended several hundred thousand dollars for reclaiming low lands and sloughs. Communication is furnished by five railroads, two of them lately built. The Chicago, Milwaukee, and St. Paul Railway has shops at Dubuque. The mining industry, once so important, has declined, the value of the lead-ore for 1885 having been but \$16,000, and of the zinc-ore \$12,000. Formerly from \$500,000 to \$1,000,000 worth of lead was shipped annually. The grain-trade is large, and a great part of the wealth of the city has of late years been invested in manufactures. Steel steamers are made at the Iowa Iron-Works. The value of manufactures in 1885 amounted to \$10,737,300; the business of the jobbing trade to \$16,196,500; the retail sales to \$9,729,500; and the value of other activities to \$6,962,758.

Duluth, a port of entry, the capital of St. Louis County, Minn., at the southwestern extremity of Lake Superior, and at the mouth of St. Louis river, 155 miles by rail north-northeast of St. Paul. It was founded in 1856, but had in 1875 a population of only 2,953; in 1886 the population was estimated at 26,469. In 1856 a steam saw-mill and a blacksmith-shop were built; in 1858 the United States Land-Office was located there; in 1872 the customs district was organized. The financial crisis of 1873 retarded the growth of the place, but in 1878, through the development of the lumber interests and its inauguration as a distributing point, its prosperity was renewed. As a result of the panic the city became insolvent and took the form of a village. The place has a fine natural harbor, with an average width of $1\frac{1}{2}$ mile, formed by two points of land 7 miles long, extending into the lake—Minnesota Point and Rice's Point. Besides the natural entrance, the "Entry," a canal has been cut through at an expense of \$200,000. The Government protects navigation by two light-houses and a fog-horn, and the Forty-ninth Congress appropriated \$56,250 for the improvement and enlargement of the basin in

the harbor between Minnesota and Rice's Points. Authority has also been granted for a life-saving station. Superior City, Wis., lies along the border 4 miles northward, bounded on the Minnesota side by Rice's Point. Between the two points is the flat on which the docks are built, laid out in blocks with railroad-tracks between. In the rear are elevators for coal and wheat. In 1885, nine lake transportation companies were represented, with 3,501 entrances and 1,200,000 tonnage. Fully 50 per cent, may be added for 1886. Improvements made on the slips during 1886 by railroad companies, other corporations and individuals, amount to \$1,500,000. More than 41,000 piles have been driven. The docks built and improved have cost, including the dredging, \$2,200,000. Ten passenger steamers ply between this port and Buffalo, four running to Chicago, three to Sarnia, and three to Collingwood, carrying from 100 to 250 cabin passengers each. The run from Duluth to Buffalo is made in five days. A cold-storage warehouse stores more than 500 dressed cattle, not including sheep and hogs, and the slaughter-houses have a capacity of 100 cattle per day; 4,000 cattle were handled during the season of 1886. The value of exports during the months of May and June, 1886, was \$649,800, and of imports, \$47,306. More than 2,500,000 tons of iron-ore were shipped from Lake Superior mines in the season of 1886, the gross gain over the shipments of 1885 being 1,000,000. Shipments of flour, sheep, wool, hides, copper and silver ore, and bullion reached 43,000 tons in one week. Salmon packed near Victoria on Vancouver Island is brought here by rail and shipped by propeller to Toronto. Following shows receipts and shipments of some articles:

ARTICLES.	Receipts.	Shipments.
Steel rails, tons, 1886.....	100,000	
Flour, barrels, 1886.....		1,500,000
Wheat, bushels, 1886.....	25,000,000	
Lumber, feet, 1885 (east).....		40,000,000
Lumber, sales in 1885.....		78,000,000
Coal, tons, 1885.....	600,000	
Coal, tons, 1886.....		700,000

The amount of flour handled in 1886 was more than three times the amount of the previous year. The wheat shipped during May, 1886, was 2,903,697 bushels against 1,562,000 in May, 1885. The freight bills for wheat arriving in one day over one line of railroad aggregate \$25,000. There are eleven elevators and warehouses, and contracts have been drawn for five more. In 1885-'86 the railroad companies expended over \$3,500,000 in improvements, and other improvements raised the sum to nearly \$6,000,000. Four railroads now enter Duluth, and two others are in process of construction. There are nine lumber-mills having a capacity of 170,000,000 feet. There are vast forests of pine and black or yellow birch and basswood in the country tributary to Duluth. The mills and lumber-

yards occupy half a mile square at the west end. The fishing interests employ 175 men, 1 steamer, 6 tugs, and 50 sail-boats. The catch averages 12 to 16 tons a week. The following are the figures for 1885: White-fish, 506,826 pounds; trout, 1,258,452 pounds; other fish, 125,000 pounds; total, 1,890,278 pounds; value, \$121,186.50.

The Forty-ninth Congress appropriated \$10,000 for a fish-hatchery. In the spring of 1886, 15,000,000 lake-trout from the hatcheries of St. Paul were planted in the fishing waters along the north shore to Pigeon river and along the south shore to Apostle Islands. The principal manufactures are iron products, lumber, wood-work, brick, soap, brooms, and there are some minor industries. One lime-kiln company has three kilns, making 250 barrels of lime daily. An iron company controlling 1,000 laborers in the mines has headquarters here. The bank transactions in 1885 amounted to \$288,267,857, an increase of \$132,000,000 over the previous year. There are four banks, two of them national, with capital of \$712,000 and deposits \$1,200,000. The postal revenue for the last year was \$26,000. Quarries of granite, slate, trap, and sand-stone are worked in the vicinity, and mines of amethyst yield stones of great size and brilliancy. There are sixteen churches, seven public schools, a fine opera house and a court-house, a fire department, electric lights, water-works, and a street-railway. The Board of Trade has a fine building. Five hundred buildings were erected during the first half of 1886. There are four daily and three weekly newspapers, a semi-weekly and a monthly publication.

Elizabeth, a city and the capital of Union County, N. J., on Newark Bay and Staten Island Sound, 11 miles by rail west-southwest of New York. Latitude, $40^{\circ} 40'$ north; longitude, $74^{\circ} 13'$ west. The population in 1870 was 20,832; in 1875, 25,923; in 1880, 28,229; in 1886 it was estimated at upward of 30,000. More than eighty passenger-trains are run to New York daily. The total valuation of property in 1880 was \$11,540,835. A large business in coal-shipping is done at the port. The most prominent business enterprise is that of the Singer Sewing-Machine Company, in which an average of about 1,500 hands are employed. Capital to the amount of \$105,000 was employed in 1880 in the manufacture of other foundry and machine-shop products, the total value of which was \$248,000. The entire amount of capital invested at that time in manufactures was \$2,453,180; the number of employés, 3,849; and the value of products, \$6,828,027.

Elmira, a city and the capital of Chemung County, N. Y., on both sides of the Chemung river, 273 miles west-northwest of New York. Latitude, $42^{\circ} 5'$ north; longitude, $76^{\circ} 50'$ west. The population was 15,863 in 1870; 20,541 in 1880; 21,814 in 1886; including, however, the

territory not included within the corporate limits but covered by the mail delivery, it has about 25,000. Six railroads touch the city, and there are three large car-shops located there. New manufacturing enterprises of importance are the La France Steam-Fire Engine and the Hay's Truck and Ladder establishments, and the Payne Manufactory of Boilers, Steam-Engines, etc. The value of boots and shoes produced in 1880 was \$760,425; of tanned leather, \$540,600; of planed lumber, \$207,900; and of men's clothing, \$260,250. The entire amount of capital invested in manufactures was \$2,698,762; the number of hands employed, 2,728; and the value of products, \$4,877,300.

Fall River, a city and port of entry of Bristol County, Mass., on Mount Hope Bay, an arm of Narragansett Bay, at the mouth of Taunton river, 49 miles by rail south by west of Boston; latitude $41^{\circ} 43'$ north, longitude $71^{\circ} 9'$ west. The population in 1870 was 26,766; in 1880, 48,961; in 1886, 59,021. Three railroads touch the city, and horse-car tracks are laid in the principal streets. A new custom-house and post-office building has recently been erected, and a fine high-school building is approaching completion. The coastwise trade of the city is considerable. In 1880, 20 vessels in foreign trade were entered and 17 cleared; 732 in coastwise trade, with tonnage of 1,183,743, were entered and 683 cleared; vessels enrolled in the district, 124. Steam has been largely substituted for water-power in the mills, which now run 1,770,764 spindles and 41,506 looms. The amount of capital employed in cotton-manufacture in 1880 was \$22,707,043, and the value of the product \$14,510,007. The whole amount of capital invested in manufacturing at that time was \$25,076,518, the number of employés 17,085, and the value of products \$18,913,584.

Galveston, a city and port of entry, capital of Galveston County, Texas, the chief city of the State in population and commerce, on the northeastern extremity of Galveston Island, at the mouth of Galveston Bay, 214 miles by rail east-southeast of Austin; latitude $29^{\circ} 19'$ north, longitude $94^{\circ} 46'$ west. The population in 1870 was 13,818; in 1880, 22,248; in 1886 it is estimated at 42,000. It has nine public schools with 80 teachers, 4,000 pupils, and \$215,500 worth of school property. The value of taxable property in the city is \$22,000,000. Galveston is entered by the Gulf, Colorado, and Santa Fé, and the Galveston, Houston, and Henderson Railroads, and has a street-railroad service. There are two lines of steamships plying between it and New York city. In 1885, 215 transient steam-vessels and 211 sail-vessels, with tonnage of 356,596, were employed in trade to European and North and South American ports, while the home fleet consisted of 146 sail, 32 steam, and 5 unrigged vessels, with tonnage of 7,148. Ten years ago there were two national banks; there are

now five, besides six private banks and banking-houses; capital, \$2,100,000; dealings in exchange in 1885, \$56,900,000. A new custom-house is in process of erection. There are five cotton-presses with 13 storage-yards built of brick, with a capacity of 140,000 bales; power of compress, 6,000 bales per day; aggregate capital, \$1,100,000. There are 47 firms in the wholesale trade, with an aggregate capital of \$12,000,000, whose sales for 1885 amounted to more than \$29,000,000. The Galveston Oil-Mills have a capital of \$300,000, and the Texas Star Flouring-Mill \$100,000. Another flouring-mill is in process of erection, with a capital of \$1,000,000. The value of exports to foreign ports in 1874-75 was \$15,876,632; in 1885, \$16,531,766. The chief business is the shipment of cotton.

Harrisburg, a city, capital of Pennsylvania and of Dauphin County, on the east bank of the Susquehanna river, 105 miles by rail west by north of Philadelphia; latitude $40^{\circ} 16'$ north, longitude $76^{\circ} 53'$ west. The population in 1870 was 23,104; in 1880 it was 30,762; in 1886, estimated at 40,000. The South Pennsylvania Railway Company is now building a new railroad-bridge over the river. Two great railway systems intersect at Harrisburg, the Pennsylvania, Philadelphia, and Reading, and the Cumberland Valley, while the Northern Central connects it with Baltimore and with the North. The manufacture of iron and steel is extensive. In 1880 the capital employed in that industry was \$2,021,692, with a product worth \$2,839,500. Steelton, an adjoining suburb, is the seat of the Pennsylvania Steel-Works. The capital invested in the manufacture of planed lumber the same year was \$205,000, the product \$110,019; in printing and publishing \$172,550, product \$465,920; in foundry and machine-shops \$145,000, product \$174,000. The total capital of all establishments was \$4,026,457; the number of hands, 3,660; the total product, \$7,663,416.

Hartford, a city, capital of Connecticut and of Hartford County, on the west bank of the Connecticut river, at the head of sloop navigation, 50 miles by the river from Long Island Sound, 110 miles by rail northeast of New York, and 114 miles west-southwest of Boston; latitude $41^{\circ} 46'$ north, longitude $72^{\circ} 41'$ west. The population in 1870 was 37,180; in 1880, 42,015; it is now estimated at 45,000. A new high-school building was erected in 1884. The Soldiers' and Sailors' Memorial Arch, standing at the entrance to the Capitol-grounds, was dedicated in 1886. The library of the Connecticut Historical Society has increased in ten years from 16,000 volumes to 23,000, and the Watkinson from 27,000 volumes to 36,600. There are in all 23 libraries in the city, containing 277,765 volumes. The number of pupils enrolled in the public schools has risen from 7,000 to 10,000. The capital invested in fire-insurance companies has increased from \$6,400,000 to \$10,000,000, and that in life and

accident insurance companies from \$100,000,-000 to \$150,000,000. The following table shows the value of the most important industries in 1880:

MANUFACTURES.	Capital.	Value of products.
Foundry and machine-shop products .	\$1,007,000	\$821,705
Clothing, men's.....	112,686	657,212
Printing and publishing.....	929,700	518,600
Flouring- and grist-mill products.....	122,000	405,296
Boots and shoes.....	142,300	369,100
Saddlery and harness.....	47,575	306,589
Plated and britannia ware.....	63,500	227,175

The entire amount of capital invested in manufacturing was \$9,679,126, the number of hands employed was 6,300, and the total value of products \$11,437,200.

Hoboken, a city of Hudson County, N. J., on the Hudson river, opposite New York, joining Jersey City on the northeast; latitude $40^{\circ} 44'$ north, longitude $74^{\circ} 1'$ west. The population was 20,297 in 1870; in 1880 it was 30,999; it is now estimated at 39,000. Hoboken is the terminus of the Delaware and Lackawanna Railway and of four lines of European steamships. An elevated traction-cable road from the ferries to Jersey City Heights began operating in 1886, and a new ferry to Fourteenth Street, New York, was completed the same year. A large city hall was built in 1881, and a new opera-house in 1886. There are now 8 public schools, including a high, a normal, and an evening school, with an enrollment of 5,415, and 2 newspapers. The capital employed in foundries and machine-shops in 1880 was \$123,000, and the value of products \$141,056; in the manufacture of silk and silk goods a capital of \$74,300 was employed, and the value of the product was \$101,000. The entire amount of capital invested in manufactures was \$486,320, the number of hands employed 723, and the value of products \$1,051,136.

Holyoke, a city of Hampden County, Mass., on the west bank of the Connecticut river, 8 miles by rail north of Springfield, 11 miles by rail northeast of Westfield; latitude $42^{\circ} 12'$ north, longitude $72^{\circ} 36'$ west. The population in 1870 was 10,733; in 1880, 21,915; in 1885, 27,895. Nearly one half of the population is foreign-born. Its water-power, derived from a fall of 60 feet in the Connecticut river, is equal to 30,000 horse-power. The Connecticut River Railroad passes through, and a branch connects it with the New Haven and Northampton. The City Hall, built of granite, cost \$400,000. There are 4 national banks, 3 savings-banks, 10 churches, an opera-house, 1 daily, 4 weekly, and 4 monthly newspapers, and 12 public schools. The largest manufacturing industry is that of paper, more fine writing and envelope papers being made here than in any other city in the country. The largest blank-book works in the country also are located here. The average daily product of paper is 200 tons. Following are the statistics of the principal industries in 1880:

MANUFACTURES.	Capital.	Value of products.
Paper.....	\$3,476,979	\$4,610,947
Cotton goods.....	2,810,000	3,056,851
Woolen goods.....	895,794	899,851
Foundry and machine-shop products.....	282,500	521,592

The whole amount of capital invested in manufacturing was \$8,913,903, the number of hands 9,011, and the value of products \$13,667,327.

Jersey City, a city, the capital of Hudson County, N. J., on the west bank of Hudson river at its entrance into New York Bay, opposite the city of New York; latitude $40^{\circ} 43'$ north, longitude $74^{\circ} 1'$ west. The population in 1870 was 82,546; in 1880, 120,722; in 1885, 155,300. Thirteen railroads enter the city, and it is the terminus for the Inman, Red Star, Monarch, and Netherlands lines of steamships. There are three national and many savings banks. As the city forms a part of the New York customs district, its commerce is not separately returned. The statistics of the most important manufacturing industries in 1880 were as follow:

MANUFACTURES.	Capital.	Value of products.
Sugar and molasses, refined.....	\$2,100,000	\$22,799,614
Slaughtering and meat-packing.....	1,272,200	18,551,783
Drugs and chemicals.....	563,000	1,517,214
Iron and steel.....	850,000	1,446,500
Foundry and machine-shop products.....	768,300	1,041,471
Cooperage.....	167,700	630,529
Ship-building.....	263,500	541,766
Bread and other bakery products.....	75,150	459,888
Liquors, malt.....	856,500	416,886

The entire amount invested in manufacturing in that year was \$11,899,915, the number of employés 11,138, the total value of products \$60,473,905.

Kansas City, a city of Jackson County, Mo., the second in the State in population and importance, on the right bank of the Missouri river, near the mouth of the Kansas, and close to the Kansas border. It is 283 miles by rail west by north of St. Louis, and 135 miles west-northwest of Jefferson City. The population in 1870 was 32,260; in 1880 it was 55,787; and in 1885 was estimated at 105,042. This does not include the population of the suburbs across the river, which have this year been organized under the name of Kansas City, Kansas, and virtually form a part of the city. The total population is 128,477. The assessed valuation of property has risen from \$13,378,950 in 1880 to \$46,886,790 in 1886; the rate of taxation has fallen from 25 mills to 15; and the city indebtedness from \$1,430,219 in 1872 to \$965,000 in 1885. The number of building permits has increased from 741 in 1880 at a valuation of \$1,813,841 to 2,914 in 1885 at a valuation of \$5,758,629. The real-estate transfers amounted to \$5,461,250 in 1880, and to \$17,745,750 in 1885. The following table will serve to show further the advance from 1880 to 1885:

TRANSACTIONS.	1880.	1885.
Real-estate transfers.....	\$5,461,250	\$17,745,750
Internal-revenue receipts.....	\$253,929 25	\$961,298 24
Post-office receipts.....	\$123,753 09	\$238,562 95
Cattle received.....	244,709	506,627
Hogs received.....	676,477	2,358,718
Sheep received.....	50,611	221,801
Horses and mules received.....	14,086	24,506
Cattle slaughtered and packed.....	80,922	78,963
Hogs slaughtered and packed.....	539,097	1,529,415
Sheep slaughtered and packed.....	...	32,915
Bushels of wheat received.....	4,093,528	4,763,844
Bushels of corn received.....	4,421,700	7,894,584
Bushels of oats received.....	366,456	881,867
Tons of coal received.....	820,897	583,282

The clearing-house was organized in 1875, and clearances show a gradual growth of trade from \$20,407,967 of that year to \$223,582,933 of 1885. There are 18 public schools and four more in process of erection. There are about 60 churches, three medical colleges, three hospitals, a Roman Catholic college for girls, and four libraries and reading-rooms. The six daily newspapers have increased to eight, and 31 other periodicals are published. There are water-works and four horse-car lines. One cable line is in operation and others are projected. An elevated road is in process of construction, running between the city and Wyandotte, a suburb. A new building for the Board of Trade, to cost \$300,000, is partly built, and a new hotel valued at \$700,000. There are 13 banks and two in process of organizing, with capital of \$1,000,000 and \$500,000, respectively. A large smelting establishment is located at Argentium. Thirty firms deal in farm implements, 30 in lumber, and 50 in grain. Fourteen lines of railroads enter the city, using a common depot, and three other roads are in process of construction.

Lancaster, a city, capital of Lancaster County, Pa., on the right bank of Conestoga creek, 12 miles from its junction with Susquehanna river, 68 miles by rail west of Philadelphia; latitude $40^{\circ} 3'$ north, longitude $76^{\circ} 21'$ west. The population in 1870 was 20,233; in 1880, 25,769; in 1886 it was estimated at 30,000. Lancaster is reached by the Pennsylvania Railroad and the Quarryville Branch of the Columbia and Reading. It is the site of a crematorium, the second completed in the United States. It is surrounded by one of the largest and most productive limestone regions of the State. The largest industry is the making of cotton goods. Following are statistics of the largest establishments for 1880:

MANUFACTURES.	Capital.	Value of products.
Cotton goods.....	\$1,882,000	\$1,654,182
Carriages and wagons.....	151,600	242,760
Tobacco, cigars, and cigarettes.....	125,720	236,435
Foundry and machine-shop products.....	184,650	225,623
Clothing, men's.....	121,265	214,875
Leather, tanned.....	66,400	178,128
Leather, curried.....	51,300	177,455
Liquors, malt.....	180,000	139,275

The entire amount invested in manufacturing was \$3,792,740, number of employés 4,252, and total value of products \$5,404,937.

Lawrence, a city, capital of Douglas County, Kansas, on both banks of the Kansas river, 40 miles above its mouth, 25 miles east by south of Topeka, and 28 miles southwest of Leavenworth. It was settled in 1854. The population in 1875 was 7,268; in 1886, 10,300. It is on the Union Pacific, the Atchison, Topeka, and Santa Fé, and the Southern Kansas Railroads. The State University and Haskell Institute, a Government Indian school, are located there. The city possesses good water-power, has five corn- and flour-mills, two machine-shops, and other manufacturing establishments.

Lawrence, a city and one of the shire towns of Essex County, Mass., on both sides of the Merrimack river, about 26 miles from its mouth, 26 miles by rail north of Boston, and nine miles below Lowell; latitude $42^{\circ} 42'$ north, longitude $71^{\circ} 9'$ west. The population in 1870 was 28,921; in 1880, 39,151, of which about 44 per cent. are of foreign birth. In 1845, there was not one dwelling on the ground now covered by the most populous part of the city. A dam was built across the river in that year, and in 1853 Lawrence received a city charter. The water-power afforded by the dam is estimated at about 10,000 horse-power. The Government has so improved the river below the city that barges and steamboats of light draught can reach the lower part of the city without difficulty. Four railroads afford communication with Boston and with the north. There are two daily papers and a street-railroad. The great water-power furnished by the fall of the river is utilized for manufactures, mainly of woolen, cotton, and worsted goods. Ten years ago it was reported as having eight cotton and woolen corporations, with an aggregate capital of \$7,590,000, about 360,000 spindles, 8,600 looms, and 11,000 operatives. In 1880 there were seven establishments for making cotton goods, three for woolen goods, five for worsted goods, and three for mixed textiles, in all 18, with an aggregate capital of \$15,232,285, and employing 13,218 hands, besides three for dyeing and finishing textiles, with a capital of \$1,645,000 and employing 1,311 hands. Capital to the amount of \$410,000 was employed in the manufacture of paper, and \$296,362 in that of foundry and machine-shop products. The entire capital of all establishments in 1880 was \$18,698,977, the whole number of employés 16,719, and the total value of products \$25,058,246. The value of the product of cotton, woolen, worsted, and mixed goods amounted to \$18,002,508.

Leavenworth, a city, the largest and oldest in Kansas, and the capital of Leavenworth County, on the right bank of Missouri river, 500 miles above its mouth, 25 miles northwest of Kansas City, Mo., and 45 miles northeast of Topeka. The population in 1875 was 15,136; in 1880, 16,546; in 1886 it was estimated at 30,431. A system of water-works has been completed, and several miles of the Waring

system of sewers are in use. A large Union depot, and a Government building for a court-house and post-office are in process of construction. The Southwestern Branch Soldiers' Home was placed at Leavenworth in 1884, and occupies 640 acres two miles south of the city. There are ten large buildings nearly completed, and others begun. Several hundred veterans have a home there. A school of application, for training young officers, has been established at Fort Leavenworth, two miles north of the city, and a United States military prison. A large river-trade was formerly carried on; but the carrying-trade is now almost monopolized by the railroads. The development of the bituminous coal-beds that underlie the city has given a strong impetus to manufacturing. The chief establishments are foundries, stove, boiler, machine, and brass works, planing- and flouring-mills, box, barrel, cigar, and furniture factories, and wagon, bridge, and glucose works. New elevators have been built to accommodate the increasing grain-trade. The apple-trade is very large, thousands of barrels being shipped every year.

Los Angeles, a city, capital of Los Angeles County, Cal., on the west side of Rio de los Angeles, which falls into San Pedro Bay, 350 miles south-southeast of San Francisco, and 300 miles south-southeast of Vallejo; latitude 34° north, longitude 118° west. The population in 1875 was 5,728; in 1880, 11,000; in 1886 it was estimated at 40,000. The assessed value of real and personal property has risen from \$5,947,580 in 1878 to \$16,273,535 in 1885. Several colonies have grown up within 20 miles of Los Angeles in the past fifteen years, many within five years. The wealth of the county increased from \$16,228,106 in 1878 to \$35,494,027 in 1885. The city is a railroad center, and a favorite winter resort for invalids.

Louisville, a port of delivery, the chief city of Kentucky, and capital of Jefferson County, on the south bank of Ohio river at the falls, about 400 miles above its mouth, and 600 miles below the head of navigation at Pittsburg, 150 miles below Cincinnati, and 45 miles west of Frankfort. The population in 1870 was 100,753; in 1880 it was 123,758; in 1886 it was 155,000, about one fifth of whom were colored. In 1870 there were 8 national banks, 15 or 20 State banks, 6 daily newspapers, several medical schools, 95 churches, and 3 public libraries, the State Library having 30,000 volumes, and a museum and natural history department with 100,000 specimens. There are now 9 national and 18 other banks with a capital of \$9,113,500, 5 daily and 32 other newspapers and journals, 32 school-buildings, 5 medical colleges, 128 churches, and 3 public libraries. Formerly the trade of the city was mainly by the river; but it now has ample railway facilities, besides several lines of freight and passenger steamboats running up as far as Pittsburg and down as far as New Orleans. An elevated railroad along the river-

front, two miles in length, connects the northern and southern lines of railway. Besides the bridge at the head of the falls, an iron railway, wagon, and foot bridge with stone piers crosses the river at Portland, the southwest suburb of the city, at the foot of the falls. The total value of property at the last assessment was \$62,763,461. The whole number of manufacturing establishments in 1870 was 783; the capital invested, \$11,119,000; the hands employed, 11,549. There are now nearly 1,300 establishments with \$22,000,000 capital and 22,000 hands, and production amounting to a value of \$50,000,000. The largest business is the trade in whisky. The manufacture of five distilleries in 1874 amounted to 1,037,644 gallons. The amount distilled in the Louisville district in 1884 was 15,511,000 gallons—in bond, the same year, 23,573,448 gallons. There are 75 wholesale liquor-houses. Four leading plow-factories produce annually 225,000 plows and 35,000 cultivators. The production of wagons is over 10,000 annually; the value of furniture made, \$1,500,000. In 1885, 900,000 barrels of hydraulic cement were manufactured. There are 12 tobacco-factories. Other important manufacturing products are those of architectural iron material, boilers, bridges, beer, and leather. Pork-packing is an important business, the sugar-curing of hams being a specialty. Large quantities of leaf-tobacco are exported to Europe and Canada.

Lowell, a city and one of the shire towns of Middlesex County, Mass., on the Merrimack river, at the mouth of the Concord, 26 miles by rail northwest of Boston; latitude $42^{\circ} 38'$ north, longitude $71^{\circ} 19'$ west. The population in 1870 was 40,928; in 1880 it was 59,475; in 1885, 64,107. Water-power equal to 14,000 horse-power is furnished by the two rivers. The number of pupils in the public schools has risen in ten years from 5,000 to 10,000, the number of daily newspapers from three to five, of churches from 30 to 36, the number of volumes in the City Library from 17,000 to 30,000, and of those in the Mechanics' Library from 13,000 to 16,000. Seven railroads enter the city. There are four parks, the largest of 22 acres. The manufacture of cotton goods is the most important industry. In 1880 capital to the amount of \$11,279,011 was invested in cotton-mills, \$1,975,509 in the manufacture of woolen goods, \$634,862 in that of worsted goods, and \$3,000,000 in establishments for dyeing and finishing textiles. The value of the product of cotton goods was \$19,510,955; of woolen goods, \$3,326,945; of worsted goods, \$1,367,320; and of the dyeing and finishing establishments, \$1,993,751. The foundries and machine-shops, with a capital of \$1,216,860, produced goods of the value of \$2,378,799. The entire capital of all establishments was \$20,465,192, the number of hands employed 20,039, and the total value of products \$33,935,777. The following table shows the advance from 1875 to 1885:

ITEMS.	1875.	1885.
Looms.....	15,159	28,234
Spindles.....	678,521	884,494
Hands employed.....	16,000	18,000
Yards of cotton goods made per week.....	2,660,000	4,882,000
Yards of carpeting made per week.....	37,500	60,000
Dozens of hosiery made per week.....	16,800	17,046
Yards dyed and printed per annum.....	64,951,200	82,483,960

The Lowell Machine-Shop, having at the former date a capital of \$600,000 and employing 1,100 hands, has now a capital of \$900,000 and employs 1,600 hands.

Lynn, a city of Essex County, Mass., on the north shore of Massachusetts Bay, ten miles northeast of Boston; latitude $42^{\circ} 27'$ north, $70^{\circ} 57'$ west. The population in 1870 was 28,233; in 1880, 38,274; in 1885, 45,861. The Government has recently made an appropriation for improving the harbor, which, though well protected, is shallow and not available for vessels of heavy draught. The work has been begun, the ultimate object being to divert the current of Saugus river to a new channel in the harbor, that it may act as a scourer. Lynn is entered by two railroads, and has a street-railway system, extending not only through the city but to outlying towns and cities, one line to Boston. The City Hall was erected at a cost of \$300,000; there are 72 schools, with 139 teachers; the school population is 7,527. Opposite the City Hall is a soldiers' monument, in bronze, cast in Munich from designs by Jackson; it cost \$30,000. The Public Library has more than 33,000 volumes. There are five national banks of discount, with an aggregate capital of \$1,100,000 and deposits amounting to \$1,750,000, and two savings-banks, with deposits of \$4,624,634. Five weekly and two daily papers are published. Work was begun in 1885 on a new system of sewerage. The largest park in the city is the Common, 7.25 acres. A movement is on foot to secure the forest-lands of northern Lynn, some 3,300 acres in extent, for a park. The great industry is the manufacture of shoes. The annual product of this trade is more than \$20,000,000. There are besides large morocco-factories, shoe-machinery factories, and last, pattern, and box factories. In 1880 the value of curried leather made was \$2,283,672, and that of tanned leather, \$1,669,087. Prominent among recently established industries is that of the Thomson-Houston Electric Company, manufacturing electric-dynamo machines, lamps, etc., and employing about 700 men.

Malden, a city of Middlesex County, Mass., on the Malden river, six miles north of Boston; latitude $42^{\circ} 26'$ north, longitude $71^{\circ} 4'$ west. It was originally a part of Charlestown, was granted an independent existence in 1649, and made a city in 1882. The population in 1870 was 7,370, in 1880, 12,017, and in 1885, 16,407. It is on the Boston and Maine and Eastern Railroads, has a horse-car line, water-works constructed in 1870, and had, in 1880, 11 schools with 50 teachers and an average at-

tendance of 1,825. The Converse Memorial Building, designed by H. H. Richardson, has been recently erected for the Public Library. The principal manufactory is that of the Boston Rubber-Shoe Company, one of the largest establishments of its kind in the country. The works are valued at \$377,400. Other manufactures are those of leather, sand-paper, emery-paper, lasts and boot-trees, wire and picture-cords, hose and twines. There are also establishments for dyeing silk and cotton fabrics.

Manchester, one of the shire towns of Hillsborough County, N. H., and the largest city in the State, on both sides of the Merrimack river, 18 miles south by east of Concord, 40 miles east by south of Portsmouth, and 55 miles northwest of Boston; latitude $42^{\circ} 59'$ north, longitude $71^{\circ} 28'$ west. The population was 23,536 in 1870, 32,630 in 1880, and 37,593 in 1884. The villages Amoskeag and Piscataquog, on the west side of the river, have now a village between them, built since 1880, connected with Manchester proper by an iron bridge. Four railroads, with their connections, give facilities for communication. There are a horse-railroad and five public parks, aggregating 20½ acres. A Government Building, to cost \$200,000, is about to be erected. The public schools have 76 teachers and 3,800 pupils. There are 18 churches, five national and five savings banks, two daily and three weekly newspapers, and a free library of 29,000 volumes. The State Industrial School is at Manchester. The growth and prosperity of the city are due to the water-power afforded by the Amoskeag Falls in the Merrimack, and applied principally to the manufacture of cotton and woolen goods. Steam-power is used in dry seasons. In 1880, capital to the amount of \$8,808,584 was invested in the manufacture of cotton goods alone. It yielded \$7,604,568 worth of products. Over 6,200 operatives were employed; \$354,000 was invested in foundries and machine-shops, the products were valued at \$717,851. The entire amount of capital invested in manufactures was \$15,149,153, the number of hands employed, 10,838, and the total value of products, \$14,136,305. Between the years 1874 and 1886 the number of looms increased from 7,654 to 13,435, the number of spindles from 303,600 to 441,100, the number of employés from 9,000 to 10,825, and the number of yards manufactured per week from 1,430,000 to 2,479,000. The Manchester Locomotive-Works, incorporated in 1854, had turned out 786 complete engines up to 1875.

Memphis, a city and port of delivery, capital of Shelby County, Tenn., and the largest city in the State. It is in the southwest corner of the State, on Mississippi river, just below the mouth of Wolf river, on the fourth Chickasaw bluff, about 35 feet above the highest water, 780 miles above New Orleans, 420 miles below St. Louis, and 232 miles by rail Southwest of Nashville. The population in 1880 was 83,592.

It is the principal business city on the Mississippi, between St. Louis and New Orleans, having a large trade throughout the Southwest. The sewerage system has been changed and the sanitation greatly improved since the yellow-fever epidemics of recent years. Eight lines of railroad and several steamboat lines furnish ample facilities for transportation. There are 4 daily and 13 weekly and monthly newspapers, 17 public and 19 private schools, and 59 churches, of which 31 are colored. There are 11 local insurance companies, with a capital of \$1,750,000, and a banking capital of \$1,670,000, with aggregate clearings in 1885 of \$84,000,000. Memphis ranks as the largest inland cotton-market in the world, and its trade in this staple is rapidly increasing, having risen from 112,296 bales in 1865-'66 to 430,127 in 1885-'86. One cotton-compress system has a capital of \$1,000,000, and has capacity for compressing 6,000 bales every twenty-four hours, and a storage capacity of 150,000. There are in the city about 300 manufacturing concerns, among them 11 saw- and planing-mills employing more than 400 hands, 5 large carriage-factories, 11 cotton-seed-oil mills, a cotton-factory, wood-working establishments, and others. The grocery-trade is very large; there are 29 exclusively wholesale houses. The wholesale trade in dry-goods, boots and shoes, and drugs is also very large, and the milling system and flour-trade are growing. The bulk meat-trade in 1885 aggregated 33,000,000 pounds. The old charter of the city was abolished in 1879, the city having become involved in debt, and the conduct of its affairs being generally unsatisfactory. The Legislature made it a "taxing district," with a new government, which has no power to contract debts or levy taxes. The Governing Council is composed of three commissioners and a Board of Public Works of five, elected for four years, and serving without compensation. Under its *régime* the debt has been settled and funded, and numerous improvements have been made. The new order was approved by the people at the election of January, 1886.

Milwaukee, the chief city and port of entry of Wisconsin, capital of Milwaukee County, on the west shore of Lake Michigan, 75 miles east of Madison, and 85 miles north by west of Chicago; latitude $43^{\circ} 2'$ north, longitude $87^{\circ} 54'$ west. The population in 1875 was 100,775; in 1880, 115,712; in 1885, 158,509, by the census returns. The estimate from the "Directory" in May, 1886, was 170,000, of whom about 100,000 were born in the United States. The Government has built a breakwater at the northern end of the bay on which the city is situated, at a cost of more than \$1,000,000. The Milwaukee river, which flows through the city, has been rendered navigable and docked to the heart of the city. The new buildings erected in 1885 cost \$4,500,000. The Northwestern Mutual Life-Insurance Company has built a very large stone business block on the site of

the Newhall House, which was burned with great loss of life in 1883. Among other new buildings are the depot of the Chicago, Milwaukee, and St. Paul Railway, St. Paul's Church, the Board of Trade Building, and the Light-Horse Squadron Armory. The city is the headquarters of three railways; the Chicago and North Western Railway also passed through. The public schools were attended in 1873 by about 12,000 pupils, and the private schools by about 7,000. Now the 28 public-school buildings accommodate nearly 30,000 pupils. A new high-school building was erected in 1886 at a cost of \$75,000. There are also a State Normal School, a Girls' College, and many other institutions of learning, among them a German-American Teachers' Seminary, and a German-American Academy. In 1885 work was begun on a new park on the lake-front, commanding a fine view of the lake from a height of 80 to 100 feet. It is named Juneau Park, in honor of Solomon Juneau, the pioneer of Milwaukee, and contains a monument to his memory—a figure in copper on a base of marble. A Washington monument was raised on Grand Avenue in 1885. A National Soldiers' Home is three miles west of the city. Milwaukee is the market for the products of a large section of country north and west, including the ore from the newly discovered Gogebic iron-range, an immense deposit of Bessemer ore. The grain-trade of Milwaukee has fallen off greatly within ten years, owing to the western extension of railroad lines. It reached its maximum in 1873, when the combined receipts of wheat and flour were over 40,000,000 bushels. The grain-trade, however, is still large. Ten elevators, with a storage capacity of 5,630,000 bushels, are employed in it. The total net receipts of all kinds of grain in 1885 were as follow:

Wheat, bushels.....	9,846,894
Corn, bushels.....	637,068
Oats, bushels.....	1,666,948
Barley, bushels.....	5,392,106
Rye, bushels.....	279,264
Total.....	17,822,230
Flour, reduced to bushels.....	10,046,480

The receipts of lumber from the Michigan saw-mills in 1885 were 238,000,000 feet, with 86,718,000 shingles, besides lath, posts, etc. The receipts of coal in 1875 were 228,644 tons; in 1885, 775,750 tons. The number of persons employed in 1870 in manufactures was 8,433; in 1880, 20,866. This does not include the employés in the Bay View or West Milwaukee Iron-Works. An important industry is the manufacture of beer. In 1885, 969,420 barrels of 31 gallons each were made, valued at \$6,054,336; 400,000 gallons of whisky; and 3,907,000 gallons of vinegar, valued at \$426,560. In 1873 the product of the breweries was valued at \$2,600,000; of the distilleries, \$1,500,000.

Minneapolis, a city, capital of Hennepin County, Minn., on both sides of the Mississippi river, at the Falls of St. Anthony, 14 miles above St. Paul by the stream, and 8 miles in a direct line west-northwest of that city. The

population in 1875 was 32,721; in 1880, 46,887; in 1885 it was estimated at 129,200. Among the finest buildings are the Exposition Building, the West Hotel, which cost \$1,500,000; the Post-Office, which cost \$750,000; the Lumberman's Exchange, the Tribune Building, the Syndicate Block, and the Masonic Temple. It has about 30 public schools, two daily newspapers, and 100 churches. Among the higher institutions of learning are the State University, Macalester College, Hamline University, and Augsburg Theological Seminary. About \$70,000,000 is invested in banking; 16 railroads have connections in the city, representing 15,000 miles of track. There are 20 elevators, with a capacity of 15,000,000 bushels. The commerce in 1885 exceeded \$140,000,000 in value. Minneapolis is said to be the greatest wheat-market in the world. There are 19 lumber-mills, cutting 300,000,000 feet of lumber annually; 26 flouring-mills, with a daily capacity of 36,148 barrels. The Pillsbury "A" Mill is the largest flouring-mill in the world. The manufacturing interests aggregate \$54,000,000; \$8,975,200 was expended in building operations in 1885.

Nashville, a city, capital of Tennessee and of Davidson County, on both sides of the Cumberland river, 192 miles above its mouth, a little north of the center of the State; latitude 36° 10' north, longitude 86° 49' west. The population in 1875 was 25,865, of whom 9,709 were colored; in 1886 75,000 (colored, 18,000), within the post-office delivery limits. The river is navigable for steamboats nearly 400 miles above the city. In 1883 a new charter was given to the city, abolishing the ward system, and providing for the government by an unpaid Council of ten elected from the city at large, with a mayor elected for two years, and a salaried Board of Public Works, holding the general control of affairs. There are 66 churches, 47 periodical publications, and 2 free libraries; 14 public-school buildings accommodate 8,000 children. The school property is valued at \$233,000. Higher institutions are Fisk University for colored teachers, Central Tennessee College for colored students, Vanderbilt University with over \$1,000,000 endowment, 3 medical colleges, Roger Williams's University, colored, and 28 academies, seminaries, and private schools, with an attendance (1885-'86) of more than 18,000 pupils and 423 teachers and professors. A new wagon and foot iron truss-bridge has been built over the Cumberland, 639 feet in length. The capital of the national banks is \$3,100,000. The individual deposits in these and the private banks aggregate \$4,000,000. The manufacturing interests of Nashville are large. Of a capital of \$10,865,000 invested in manufacturing in the four leading cities of Tennessee in 1884, it had \$4,995,500. Of the 2,670 business firms and companies, 708 are engaged in manufacturing; 700 commercial travelers are employed in the wholesale trade, which aggregates annually

more than \$70,000,000. About 5,300 mechanics and skilled laborers are employed within the postal delivery limits, excluding those in the railroad-shops. During the year 1883, \$1,215,000 was invested in machinery. There are three large cotton-factories, one of which employs 800 hands, and a woolen-factory. A chewing-gum factory employs 140 hands, and crackers and candy are manufactured in great quantities. There are 25 saw- and planing-mills, and 33 firms engaged in the lumber-trade. Nashville is the first hard-wood lumber-market in the country. In hardware, stoves, and hollow-ware, a large business is done. The flouring-mills have a daily capacity of 1,800 barrels. The iron interests of the South are largely controlled there. One firm alone, representing \$9,000,000, is engaged in mining and manufacturing in Tennessee and Northern Alabama.

Newark, a port of entry and the chief city of New Jersey, capital of Essex County, on the west bank of Passaic river, 4 miles above its entrance into Newark Bay, and 9 miles west of New York; latitude $40^{\circ} 44'$ north, longitude $74^{\circ} 10'$ west. The population in 1870 was 105,059; in 1880, 136,508; in 1886, 154,000. Over 80 passenger-trains pass through the city daily, over the five lines of railway. There are graded public schools, incorporated academies, German theological schools, 2 public libraries, 7 daily newspapers, and about 100 churches. Newark is noted for the extent and variety of its manufactures. The manufacture of celluloid and cellulose goods is almost wholly confined to this city. The report of the Board of Trade for 1872 gave the total product of the sales of manufactured goods and wares as \$72,879,036. Of this about \$52,000,000 was the product of the manufacturers of the city. In 1880, the total value of products manufactured in the city was \$69,252,705. The number of establishments increased in about the same time from 1,015 to 1,319, and the number of hands employed from 29,174 to 30,046. Following are some of the most important manufactures, with the capital invested, and the total value of products in 1880:

BUSINESS.	Capital.	Value of products.
Leather.....	\$3,515,433	\$14,646,578
Gold, silver, and metal refining.....	212,000	8,794,600
Jewelry.....	2,517,899	4,002,677
Malt and malt liquors.....	2,592,300	4,508,707
Hats and caps.....	691,300	2,262,894
Cotton, woolen, and silk goods.....	1,460,000	2,212,250
Trunks, bags, and frames.....	811,800	2,138,928
Men's clothing.....	438,619	2,055,105
Boots and shoes.....	411,075	1,886,504
Slaughtering and meat-packing.....	288,000	1,653,016
Machinery.....	1,450,850	1,630,077
Saddlery hardware.....	700,200	1,496,008
Building.....	223,050	1,409,974
Chemicals.....	1,570,000	1,402,880
Fertilizers.....	475,000	1,400,000
Celluloid and cellulose goods.....	1,209,000	1,251,540
Harness.....	494,375	1,197,204
Sewing-machines.....	203,370	1,062,500
Rubber, enameled, and oil-cloth.....	355,000	1,039,040
Iron and steel.....	950,125	1,014,023

New Bedford, a city, port of entry, and one of the capitals of Bristol County, Mass., on the west side of Acushnet river, near its mouth in Buzzard's Bay, 56 miles by rail south by east of Boston; latitude $41^{\circ} 39'$ north, longitude $70^{\circ} 56'$ west. The population in 1870 was 21,320; in 1880, 26,845; in 1885, 33,393. The whale-fishery, for which New Bedford has been noted, has steadily declined in recent years. The total value of the importations of oil and bone was greatest in 1853, amounting to \$10,763,107.83. The amount of capital, vessels and tonnage employed in the industry, reached its highest point in 1857. The number of whalers at that date was 329; in 1876 it was 116; and in 1886, 78. But, while this industry has declined, owing to the discovery of petroleum, the growing scarcity of whales, and other causes, large manufacturing interests have grown up in the city. The Wamsutta Cotton-Mills were established in 1848, with a capital of \$160,000 and 15,000 spindles. In 1876 they had 86,000 spindles; in 1886, 202,000. The Potomac Mills, for print-cloths, had 22,500 spindles in 1876, and 106,000 in 1886. The Grinnell and Acushnet Mills have 62,500 spindles each. Other important manufactures are those of soap and candles, boots and shoes, iron and copper, leather, glass, cordage, and paints. The amount of capital invested in the manufacture of soap and candles in 1880 was \$900,000, and the value of products, \$1,288,981. There are two manufacturing photographic establishments, a glass decorating establishment, two electric-light companies, three carriage-factories, and Prussian-blue works. The total value of manufactured products in 1873 was about \$8,000,000; in 1880 it was \$9,835,955.

New Haven, a town, city, and port of entry, capital of New Haven County, and the largest city of Connecticut, at the head of New Haven bay or harbor, 4 miles from Long Island Sound, 36 miles by rail south-southwest of Hartford, and 74 miles east-northeast of New York; latitude $41^{\circ} 18'$ north, longitude $72^{\circ} 57'$ west. The population in 1870 was 50,840; in 1880, 62,882; in 1886, 76,600. The harbor has been improved at its entrance by a jetty built on the west shore, and by a breakwater surmounted by a lighthouse two miles south of the old lighthouse. The city owns 350 acres on the summit of East Rock, used as a public park; \$100,000 has already been spent upon it, about one half of which was the gift of private individuals. A soldiers' monument, 125 feet in height, stands on the highest point of the rock. Five railroads enter the city. In 1880 the entrances and clearances of vessels in the foreign trade were 96 and 37; of those in the coastwise trade and fisheries, 952 and 733; the number of vessels in the district, 227; the number built during the year, 35. Prominent among the manufactures are those of carriages, corsets, hardware and tools, iron products, India-rubber goods, and fire-arms.

The Marlin, Whitney, and Winchester Arms Companies have their establishments there, the last named having a capital of \$1,000,000. Following is a table of the capital and products of some branches of manufacture in 1880:

BUSINESS.	Capital.	Value of Products.
Slaughtering and meat-packing.....	\$222,000	\$4,160,780
Corsets	500,600	2,109,459
Hardware.....	978,500	1,954,260
Tools.....	283,000	248,085
Carriages and wagons.....	910,400	1,699,154
Carriage and wagon materials.....	899,199	860,675
Men's clothing	463,966	1,122,080

The whole amount of capital invested in manufacturing was \$9,703,737, the number of hands employed 15,156, and the total value of products \$24,040,225.

New York, a city of the State of New York, coextensive with the county of the same name, the commercial metropolis of the United States, and the most populous city in the Western hemisphere, situated at the mouth of the Hudson river, 18 miles from the Atlantic Ocean; latitude of the City Hall $40^{\circ} 42' 48''$ north, longitude $74^{\circ} 0' 3''$ west. The population in 1870 was 942,292, of whom 419,094 were of foreign birth; in 1875 it was 1,046,037; in 1880, 1,206,299. No census was taken in 1885. But from a comparison of the names in the city directories since 1880 it was calculated that the population is increasing at the rate of about 37,000 a year. Of the population in 1880, 727,629 were native-born and 478,670 of foreign birth. The number of dwellings in 1870 was 64,044; in 1880 it was 73,684, giving an average in 1870 of 14.72, and in 1880 of 16.37 persons to each dwelling. The number of families in 1880 was 243,157, with an average of 4.96 persons to each family. The average transient population in 1870 was estimated at 30,000; in 1880, at from 50,000 to 100,000. The facilities for transit between the various parts of the city have been greatly improved within ten years. The great suspension-bridge across the East river to Brooklyn was opened to the public in 1883, and cable-roads across it are in operation. There are four lines of elevated railroads, known as the Second, Third, Sixth, and Ninth Avenue lines; the Third Avenue line has a branch from Chatham Square to the City Hall, and one running through Forty-second Street to the Grand Central Depot. The Sixth Avenue line crosses Fifty-third Street to Ninth Avenue. The Second Avenue line has bridged the Harlem river, and extended its tracks over the mainland. At the termination of the Sixth and Ninth Avenue lines, which, above Central Park, run over Eighth Avenue, is the depot of the New York City and Northern Railroad. All the elevated roads are leased by one corporation, known as the Manhattan Railway Company. There is a cable-road on Tenth Avenue from One Hundred and Twenty-fifth to One Hundred and

Eighty-fifth Street; and another is nearly completed on One Hundred and Twenty-fifth Street, from river to river. The cars run every few minutes during the day, and most of them through the night. Railroad connections have been improved; seven roads enter the city, but the majority have their depots in Brooklyn, Jersey City, or Hoboken. The West Shore Railway, now controlled by the Central, passes up the west shore of the Hudson and through the principal cities from Albany to Buffalo. Connection will soon be made from New York with the Baltimore and Ohio. There are nineteen ferries across the East river, two to Staten Island, one to Bay Ridge, Long Island, and nine across the Hudson river. Regular lines of steamships run to nearly all European ports. There are numerous lines of coast and river steamboats running to points on the sea-coast and the rivers. Steam for heat and power is supplied through pipes underground to many buildings. It is intended to place the telegraph and telephone wires under-ground. For some years past operations have been carried on for the removal of the obstructions in the East river at Hell Gate, and much has been accomplished for the improvement of navigation, though the work is not yet completed. The Bartholdi Statue of Liberty, presented to the Republic by the Republic of France several years ago, has been placed on its pedestal at Fort Wood, Bedlow's Island, in the harbor, and was dedicated with appropriate ceremonies in 1886. Riverside Park, extending from Seventy-second to One Hundred and Twenty-ninth Street, and bordering on the Hudson, has been improved, and contains the tomb of Gen. U. S. Grant. It is proposed to lay out large parks on the mainland north of Harlem river, and the Legislature has authorized the purchase of the necessary land. Prominent among new buildings are the Barge Office, a handsome granite building at the Battery, and the Produce Exchange on Whitehall Street. The total amount of business done at the post-office in 1885 was \$70,534,363.01. Much of the vacant space on the west side of the city and beyond the Harlem river is used for market gardens. The census of 1880 reported 2,229 persons engaged in agricultural pursuits within the city limits. The police force has been increased in ten years from about 2,500 to 3,000 men, the number of steam fire-engines from about 45 to 54. In about the same time the number of hospitals has increased from 25 to 36; of dispensaries, from 30 to 47; and the number of orphan asylums and homes to 103. There are 20 colleges and seminaries, and 24 medical institutions, colleges, and societies for instruction. The total number of libraries is 33. The number of churches has increased from 350 to 424, and of periodicals from 400 to 631, of which 30 are daily. Some handsome armories for the State militia have recently been built. A new aqueduct is in process of construction.

CITIES, AMERICAN. (NORFOLK.)

The following table shows the valuation of property, the debt, etc., in 1876 and 1886:

ITEMS.	1876.	1886.	ARTICLES.	1875.	1885.
Assessed value of real estate.	\$892,428,165	\$1,208,941,065	Dutiable merchandise.....	\$285,898,509	\$264,142,862
Assessed value of personal property.....	218,626,178	217,027,221	Free merchandise.....	91,791,583	119,397,654
Total valuation.....	\$1,111,054,843	\$1,420,968,286	Specie and bullion.....	18,488,557	17,701,094
			Total.....	\$840,628,119	\$401,241,550
			EXPORTS:		
Funded debt, or long bonds..	\$119,631,818	\$125,475,239	Merchandise, domestic.....	247,681,724	821,149,580
Less securities in sinking fund	28,179,102	79	Merchandise, foreign.....	8,780,444	9,669,118
Total net funded debt....	\$91,452,210	49	Specie and bullion.....	67,556,650	24,641,266
Bonded debt of territory annexed from Westchester County, about.....	1,250,000	00	Total.....	\$824,018,818	\$355,459,959
Temporary debt or assessment bonds, payable in whole or in part from assessments for street openings and improvements....	22,371,400	00			
Revenue bonds issued in anticipation of taxes.....	6,104,344	51			
Total debt.....	\$121,178,455	00			

The following table shows the number and resources of the banks in 1875 and 1885:

ITEMS.	1875.	1885.
National banks.....	48	45
Aggregate resources.....	\$389,758,084	\$501,707,358
Capital stock.....	\$68,500,000	\$86,498,367
Circulation.....	\$18,309,817	\$9,985,242
Individual deposits.....	\$173,494,399	\$275,957,896
State banks.....	26	27
Aggregate resources.....	\$72,118,148	\$140,580,827
Capital.....	\$16,685,200	\$18,657,700
Deposits.....	\$42,997,903	\$118,949,915

Following shows the increase in manufactures between the years 1870 and 1880:

ITEMS.	1870.	1880.
Number of establishments.....	7,624	11,839
Number of hands.....	129,577	227,352
Amount of capital invested.....	\$129,952,262	\$181,206,356
Amount of wages paid.....	\$63,824,040	\$97,080,021
Value of materials used.....	\$178,696,939	\$288,441,691
Value of products.....	\$382,951,520	\$472,926,437

The table below shows the number of establishments, capital, and value of products of the most important manufactures in 1880:

BUSINESS.	No. of establish- ments.	Capital.	Value of products.
Men's clothing.....	736	\$22,396,898	\$60,798,697
Slaughtering and meat-pack- ing.....	58	1,801,000	29,297,527
Printing and publishing.....	412	14,774,929	21,696,354
Malt liquors.....	79	18,491,000	19,137,882
Women's clothing.....	230	4,805,665	18,930,553
Tobacco, cigars, and cigarettes	761	6,588,448	18,347,108
Tobacco, chewing, smoking, and snuff.....	17	1,015,540	4,320,972
Refined lard.....	11	786,366	14,753,718
Foundry and machine-shop products.....	287	10,635,508	14,710,835
Sugar and molasses, refined.....	5	2,730,000	11,330,888

The relative value of imports and exports for 1875 and 1885 is shown by the following tables:

ITEMS.	ARTICLES.	1875.	1885.
IMPORTS:			
Dutiable merchandise.....	\$285,898,509	\$264,142,862	
Free merchandise.....	91,791,583	119,397,654	
Specie and bullion.....	18,488,557	17,701,094	
Total.....	\$840,628,119	\$401,241,550	
EXPORTS:			
Merchandise, domestic.....	247,681,724	821,149,580	
Merchandise, foreign.....	8,780,444	9,669,118	
Specie and bullion.....	67,556,650	24,641,266	
Total.....	\$824,018,818	\$355,459,959	

The following tables show the movements of shipping for the years ending June 30, 1875, and June 30, 1885:

FOREIGN TRADE.	1875.	1885.
Number of entrances.....	5,541	5,824
Tonnage of entrances.....	4,421,074	5,659,788
Number of clearances.....	5,221	5,304
Tonnage of clearances.....	4,811,488	5,440,724

DESCRIPTION.	VESSELS BELONGING—	
	In the district in 1875.	To the port of New York in 1885.
Number of sailing-vessels.....	2,792	2,487
Tonnage of sailing-vessels.....	606,856	573,905,12
Number of steamers.....	796	1,028
Tonnage of steamers.....	840,191	864,169,58
Number of canal-boats.....	2,218	209
Tonnage of canal-boats.....	216,663	21,178,54
Number of barges.....	587	465
Tonnage of barges.....	128,880	98,407,05
Total number.....	6,888	4,189
Total tonnage	1,287,040	992,668,29

The whole number of aliens landing at this port from 1847 to 1874, inclusive, was 5,438,544, an average of 194,234 a year. The whole number from 1875 to 1885, inclusive, was 2,696,921, an average of 245,175 a year. Of those that landed in 1885, 33,009 came from England, 35,597 from Ireland, 98,111 from the German Empire, 16,033 from Italy, 15,707 from Sweden, and 16,578 from Russia.

Norfolk, a city and port of entry of Norfolk County, Va., on the north bank of Elizabeth river, opposite the city of Portsmouth, which is connected with it by ferry, and virtually forms a part of it. It is 8 miles above Hampton Roads, 32 miles from the Capes of Virginia, 17 miles by land from the Atlantic, and 88 miles southeast by east of Richmond; latitude $36^{\circ} 51'$ north, longitude $76^{\circ} 19'$ west. The population in 1875 was 19,229; it is now 22,000. That of Portsmouth is 14,000. The port is the terminus of seven railroads, and regular lines of steamers connect it with the large seaports of the country. Communication with inland towns is furnished by the Albemarle and Chesapeake and the Dismal Swamp Canals. A Chamber of Commerce and a Cotton Exchange are common to the two cities. Large quantities of oysters and early fruits and vegetables are shipped to Northern ports. In this trade the city ranks first in the country, and in cotton third. The value of exports from the customs district, which in-

cludes Portsmouth, for 1874-'75 was \$5,243,986; for 1884-'85 it was \$10,341,403. The shipments of cotton during the latter year amounted to 552,806 bales. This port is also the largest pea-nut market in America; nearly 1,500,000 bushels are handled in a year.

Northampton, a city, and the shire town of Hampshire County, Mass., on the west bank of Connecticut river, 80 miles west of Boston, and 17 miles by rail north of Springfield; latitude $42^{\circ} 19'$ north, longitude $72^{\circ} 38'$ west. The population in 1875 was 11,108; in 1886, 13,680. It was incorporated as a city in 1882. Smith College, an institution for the higher education of women, is located here. The John Clarke Library contains 20,000 volumes, and will soon be greatly increased by the bequest of Judge Forbes. Three railroads pass through, and the city has a street-railway and electric lights. A stream passing through affords good water-power, which is utilized for manufacturing purposes, chiefly of silk and cotton goods.

Omaha, the largest city of Nebraska, a port of entry and the capital of Douglas County, on the Missouri river, opposite Council Bluffs, Ia., with which it is connected by an iron bridge, and 490 miles by rail west by south of Chicago. The population in 1870 was 16,083; in 1875 it was about 20,000; in 1880, 30,518; in 1886, about 72,000. It was laid out in 1854, and incorporated in 1857. The highest of the bluffs, once occupied by the Capitol of the State, is now crowned by the high-school building, one of the finest in the West. The Court-House is a handsome building of sandstone. A system of water-works distributes water from the Missouri river over the whole city. The Waring system of sewerage has been introduced into the more thickly settled parts. The streets are lighted by gas and electricity. The headquarters of the Department of the Platte are here, and 4 miles northwest is Fort Omaha, where a regiment of troops is stationed. Omaha is the eastern terminus of the Union Pacific Railway, and is also a terminus of five other railways. A new bridge over the Missouri river is in process of construction, and when it is completed several other railroads will enter the city and find station-room in a union depot now building. The Union Pacific shops cover a large area, and give employment to more than 1,300 men. The largest smelter in the country is here, and employs 450 men. The Willow Springs Distillery is the fourth in size of its kind in the United States, employing 125 men. Among other manufacturing establishments are nail-works, linseed-oil works, lead-works, foundries, packing-houses, and breweries. Adjoining the city proper is South Omaha, where are large stock-yards and the packing-houses of a number of Eastern and European firms. A large wholesale trade is done here in dry-goods, boots and shoes, groceries, and drugs, Omaha being the chief market for the Territories west of Nebraska.

Oswego, a city, port of entry, and one of the capitals of Oswego County, N. Y., on the south-east shore of Lake Ontario, at the mouth of the Oswego river, 305 miles by rail northwest of New York, and 170 miles west of Albany; latitude $43^{\circ} 28'$ north, longitude $76^{\circ} 30'$ west. The population in 1870 was 20,910; in 1880 it was 21,116; and in 1885, about 25,000. The city has communication by four railroads. Large quantities of coal are brought from the coal-fields of Pennsylvania and shipped to Canada and the West. For many years the business of the city was mainly confined to shipping, forwarding, and the manufacture of flour. Since 1865 these industries have declined, owing to the increase of railroad facilities and the manufacture of flour in the West. Other manufactures, meantime, have largely increased. The Oswego Starch-Factory, with a capacity of 35 tons a day, is the largest in the world. There are four flouring-mills, iron-works where portable steam-engines, agricultural implements, steam shovels and dredges, stationary and marine engines and boilers, steam-pumps, land-excavators, water-wheels, mill-machinery, brass and iron castings, and other products are made; ship and boat yards, malt-houses, planing-mills, and other manufacturing establishments. The flour- and grist-mill products for 1880 amounted to \$1,591,759; the foundry and machine-shop products to \$552,780; and the planed lumber to \$238,932. The whole amount of capital invested in manufactures was \$2,611,238, and the entire value of products was \$5,619,944. The total value of imports was \$5,403,710, and of exports, foreign and domestic, \$997,872. In the foreign trade there were 2,264 entrances with a tonnage of 374,216, and 2,256 clearances with a tonnage of 370,088. In the coast trade and fisheries the entrances were 411, with 80,030 tonnage, and the clearances 465, with 72,584 tonnage. The number of vessels registered, enrolled, and licensed in the district was 130, with tonnage of 22,219. During the year four vessels, with 724 tonnage, were built.

Peoria, a city, capital of Peoria County, Ill., on the Illinois river, at the foot of an expansion called Peoria Lake, 160 miles by rail southwest of Chicago. The population in 1875 was 22,849; in 1886, 40,000. It has unusual transportation facilities—twelve railroads, besides the river and a canal. Street improvements are rapidly carried on and many fine buildings have been recently erected, notably a court-house, completed in 1879 at a cost of \$300,000; a Board of Trade building, finished in 1877; a new hotel, in 1885, at a cost of \$245,000; a union depot, and a workhouse. Others in process of erection are a post-office and United States court-house, to cost about \$250,000; a high-school building, \$75,000; a cathedral, \$225,000; and a Congregational church, \$100,000. Among the leading manufactures are distilled spirits—the total capacity of the 13 distilleries being 44,510 bushels

of grain in each twenty-four hours, and the internal revenue upon the product amounting to about \$1,250,000 each month—glucose, corn-starch, pottery, watches, agricultural implements, foundry and machine-shop products, wagons and carriages, and planed lumber. Peoria is also a large market for grain, especially corn and oats. There are six elevator warehouses for the storage of grain, with an aggregate capacity of 2,400,000 bushels, and a total transfer capacity of 600 cars. The following table shows the receipts and shipments of some of the leading articles for the years 1884 and 1885:

ARTICLES.	RECEIPTS.		SHIPMENTS.	
	1884.	1885.	1884.	1885.
Oats, bushels..	12,947,370	15,354,780	13,905,860	15,408,720
Corn, bushels..	9,501,280	11,602,855	5,402,300	7,087,600
High wines and liquors, bbls.	4,191	8,858	211,730	208,688
Starch, lbs..			1,503,000	3,110,800
Bulk meats, lbs.	1,028,600	2,800,700	1,996,500	1,952,500
Broom-corn, lbs.	1,089,700	1,509,400	608,670	965,960
Hides and pelts, lbs.....	268,000	476,100	995,250	1,166,400

Philadelphia, the chief city of Pennsylvania and the second of the United States in population, coextensive with the county of the same name, on the Delaware river, at the mouth of the Schuylkill, 96 miles from the Atlantic Ocean, 125 miles in a direct line northeast of Washington, and 85 miles southwest of New York; latitude $39^{\circ} 57'$ north, longitude $75^{\circ} 9'$ west. The population in 1870 was 674,022; and in 1880, 847,170. The number of families, at the last-named date, was 165,044, with an average of 5·13 persons to a family; the number of dwellings, 146,412, averaging 5·79 persons in each. The assessed value of property in 1886 was \$611,309,615, the true value at least twice that sum. In 1874 the true value was estimated at \$1,025,785,831. The tax on real estate in 1886 was \$10,879,121.16; in 1875 it was \$10,518,462.86. The funded debt, Jan. 1, 1875, was \$55,272,132.40; Jan. 1, 1886, it was \$62,305,245.22. The floating debt in 1875 was \$4,018,931.25; in 1886 it was \$521,558.55. The number of national banks has increased in about ten years from 30, with an aggregate capital of \$17,135,000, to 35, with capital of about \$18,000,000, while the number of State banks has fallen from 12, with capital of about \$1,000,000, to 6, with about \$720,000. The 5 safe deposit and trust companies have increased to 8, and the number of savings-banks has fallen from 6 to 3. The number of public schools has increased from 424 to 472, and the average attendance at them from 79,565 to 99,446. The number of volumes in the Mercantile Library has grown from 126,000 to 142,000; in the Philadelphia, from 100,500 to 125,000; in that of the Academy of Natural Sciences, from 30,000 to 35,000. In 1880, Philadelphia had communication by 8 railroads, and the size of the Delaware gives it the advantages of a sea-

port. The growth of its foreign commerce is shown by the following table:

YEARS.	Imports.	Exports—foreign and domestic.
1870	\$14,500,797	\$16,984,610
1875	24,236,887	25,611,654
1880	85,961,292	49,649,693
1885	88,365,242	87,281,739

The increase in manufactures from 1870 to 1880 is shown by the following table:

ITEMS.	1870.	1880.	1882.
Number of establishments	8,184	8,567	12,068
Number of hands	187,496	155,527	242,483
Amount of capital	\$174,016,674	\$187,148,851	.....
Value of materials	\$150,325,718	\$199,155,477	.....
Amount of wages	\$55,780,180	\$64,265,966	.....
Value of products	\$322,004,517	\$324,842,935	\$481,226,809

The following gives the figures for 1880 of some of the leading manufactures:

INDUSTRY.	Capital.	Products.
Sugar and molasses, refined	\$6,072,000	\$24,294,929
Woolen goods	11,752,000	21,349,510
Mixed textiles	8,391,651	14,998,779
Worsted goods	4,459,639	8,327,282
Cotton goods	8,832,550	14,268,696
Dyeing and finishing textiles	2,359,846	4,816,405
Carpets	7,194,458	14,268,510
Clothing, men's	8,726,276	18,506,749
Clothing, women's	792,950	2,466,410
Foundry and machine-shop products	12,231,058	18,455,288
Drugs and chemicals	10,158,164	11,804,718
Boots and shoes	2,970,190	9,084,496
Hosiery and knit goods	3,402,690	8,178,415
Slaughtering and meat-packing	1,965,625	7,869,114
Printing and publishing	5,728,911	6,884,964
Leather, dressed skins	2,584,747	6,741,796
Liquors, malt	7,255,350	5,897,811

The deposits of gold of domestic production made at the United States Mint from its earliest period to the close of 1880 amounted to \$873,097,015.62, and of native silver to \$121,924,919.14.

Pittsburg, the second city of Pennsylvania in population and importance, county-seat of Allegheny County, at the confluence of the Allegheny and Monongahela rivers, which here form the Ohio, opposite Allegheny City, 466 miles above Cincinnati, and 256 miles west by north of Philadelphia; latitude $40^{\circ} 27'$ north, longitude $79^{\circ} 59'$ west. The population in 1870 was 86,076; in 1875, after annexations, it was estimated at 140,000; in 1880 it was 156,389; in 1886 it was estimated at 186,700, and that of Allegheny City 89,560. Three new railroads entering the city have been built during the past ten years, and several small branch roads have been chartered and surveyed. The introduction of natural gas, and its almost universal use in the manufactories, have made a very important change. It is estimated that its use has displaced 190,000 bushels of coal a day, or in 250 working-days over 48,000,000 bushels. There are now six chartered gas companies doing business in the city, one of which has more than 350 miles of pipe. It is estimated that the gas has increased the productive ca-

pacity of the mills over 20 per cent. Pittsburg is the great center of the iron industry. The value of the production of iron and steel alone in 1880 amounted to \$35,490,634. During the first half of 1886, 2,637,687 tons of pig-iron were produced, and the following figures are given in regard to the leading industries:

INDUSTRY.	Capital.	Hands.	Value of products.
Coal and coke	\$20,000,000	25,000	\$20,000,000
Rolling-mills	23,000,000	25,000	85,000,000
Engines and mill-machinery	3,500,000	2,750	5,000,000
Boilers, etc.	850,000	1,200	2,000,000
Steel-works	15,000,000	10,000	28,000,000
Railroad supplies and bridges	8,000,000	2,450	6,000,000
Blast-furnaces	6,00,000	3,000	10,000,000
Total.....	\$81,850,000	69,400	\$106,000,000

These figures, however, are far beyond those of the census of 1880, which gives the capital employed in all manufacturing industries as \$52,645,010, the number of hands employed as 36,930, and the total value of products, \$75,915,033.

About one quarter of the pig-iron produced in the United States is consumed in Pittsburg and Allegheny. The annual product of the rolling-mills is about 1,305,212 tons, two thirds of which is steel. The number of rolling-mills has increased in about ten years from 16 to 46, and the 8 steel-works to 20. The glass-manufacturing establishments, which numbered 45, now number 84, and the annual value of the product is more than \$10,000,000. The leading firms are competing with the best manufacturers of Limoges, Carlsbad, Bohemian, and other celebrated glasswares. Over \$4,000,000 of capital is invested in insurance business, and the risks average annually over \$150,000,000. A new court-house and jail, of Massachusetts granite, is in process of construction, to cost nearly \$3,000,000. A Government building, to be used as a post-office, begun seven years ago, is now little above the foundation.

Portland, a city and port of entry, capital of Cumberland County, Maine, the largest city in the State, on a peninsula projecting into Casco Bay, 63 miles by rail south-southwest of Augusta, and 108 miles north-northeast of Boston; latitude 43° 39' north, longitude 70° 15' west. The population in 1870 was 31,413; in 1880 it was 33,810; in 1886 it was estimated at 36,000. The suburbs, or adjoining towns of Deering, Cape Elizabeth, and Falmouth have about 14,000 inhabitants, who contribute to the business prosperity of the city. The valuation of property in 1880 was \$30,184,928; and in 1886, \$33,432,000. There are in the city six national banks, a trust company, several private banking firms, and two savings-banks, whose deposits aggregate \$10,000,000. The Public Library has about 30,000 volumes, and the Maine Historical Society has a library and cabinet here. There are 21 public schools, with an average attendance of 4,327. Six

railroads enter the city. The total value of imports in 1880 was \$1,391,086, and of exports \$3,967,250. The number of persons employed in the fisheries in the same year was 1,651, the capital invested was \$755,951, and 41,060,900 pounds of fresh fish were taken; 82,000 barrels of mackerel were packed in 1885. The canned provision trade is of growing importance. The lumber-trade is large; 85,000,000 feet of long spruce lumber alone was shipped from the port in 1885. The whole amount of capital invested in manufactures in 1880 was \$4,243,225, and the entire value of products \$9,832,931. Following are statistics of some of the most important of them:

INDUSTRY.	Capital.	Value of products.
Fruits and vegetables, canned and preserved	\$700,000	\$1,050,000
Slaughtering and meat-packing	150,000	667,000
Boots and shoes	166,000	629,000
Foundry and machine-shop products	527,000	600,400
Clothing, men's	146,800	345,500
Lumber, planed	85,000	291,056
Ship-building	112,400	242,818
Printing and publishing	155,900	227,189

Poughkeepsie, a city, capital of Dutchess County, N. Y., on the east bank of Hudson river, 75 miles by rail north of New York, and 70 miles below Albany; latitude 41° 40' north, longitude 73° 55' west. The population in 1870 was 20,080; in 1880, 20,207. The total valuation of property in the latter year was \$11,799,293. The city is on the Hudson River Railroad, and is the western terminus of the Poughkeepsie, Hartford, and Boston. Piers have been built for a new bridge across the Hudson. Following are statistics for 1880 of some of the principal manufacturing industries:

INDUSTRY.	Capital.	Value of products.
Iron and steel	\$918,000	\$746,548
Boots and shoes	511,400	202,596
Cooperage	64,000	200,000
Clothing, men's	60,500	176,500
Liquors, malt	76,000	185,301

The whole amount of capital invested in manufactures was \$3,728,700; the entire value of products, \$4,392,900.

Reading, a city, capital of Berks County, Pa., on the east bank of the Schuylkill river, and on the Schuylkill and Union Canals; 54 miles by rail east by north of Harrisburg, and 58 miles northwest of Philadelphia; latitude 40° 20' north, longitude 75° 55' west. The population was 33,930 in 1870, and 43,278 in 1880. It is now (1886) estimated at 55,000. The total valuation of property in 1880 was \$19,343,858. The city has unusual railway advantages, being the center of the Philadelphia and Reading, and the terminus of the East Pennsylvania, Lebanon Valley, Reading and Columbia, and Wilmington and Northern roads. Following shows the statistics of the principal manufactures in 1880.

INDUSTRY.	Capital.	Value of products.
Iron and steel.....	\$2,315,000	\$4,074,447
Wool hats.....	511,000	1,142,384
Foundry and machine-shop products.....	668,262	967,200
Hardware.....	422,268	579,789
Liquors, malt.....	576,000	889,200

The whole amount of capital invested in manufactures was \$7,498,256; the entire value of products, \$13,251,095.

Richmond, a city, port of entry, and the capital of Virginia and of Henrico County, the largest city in the State, on the north bank of James river, at the head of tide-water and at the lower falls, about 100 miles from the mouth of the river, and 97 miles south-southwest of Washington; latitude $37^{\circ} 32'$ north, longitude $77^{\circ} 27'$ west. The population in 1870 was 51,038, of whom 23,110 were colored; in 1880 it was 63,882; in 1883 it was estimated at 70,945, the adjoining suburbs at 4,683, and the city of Manchester, on the opposite side of the river, 7,000, all together 82,628. Improvements are in progress in the river which are expected to render the docks accessible to vessels drawing 22 feet. Six lines of railroad intersect here, and regular lines of steamers run to Norfolk, Baltimore, Philadelphia, and New York. The chief articles of export are tobacco and flour. About 16,520 hands are employed in manufactures, the most important of which are iron-works, foundries and machine-shops, flouring-mills, and tobacco-factories. Among the articles most largely manufactured are smoking and chewing tobacco, cigars and cigarettes, agricultural implements, stoves, tobacco fixtures, nails and spikes, bar-iron, fertilizers, cedar-ware, boots and shoes, boxes, paper, cotton goods, and earthenware. Ten years ago the number of hands employed was about 16,000.

Rochester, a city, port of entry, and the capital of Monroe County, N. Y., on Genesee river, 7 miles from its mouth, and 229 miles by rail west-northwest of Albany; latitude $43^{\circ} 8'$ north, longitude $77^{\circ} 40'$ west. The population in 1870 was 62,386; in 1880, 89,366; in 1886 it was estimated at 122,000. From 1875 to 1886 the number of public schools increased from 20 with 11,275 pupils, to 32 with 14,156 pupils. About 30 periodicals are published, of which 6 are daily, 4 English, and 2 German. An Academy of Science was incorporated in 1881. The Powers Art-Gallery has one of the finest collections in the country, and the university one of the best cabinets and Museums of Natural Science. The Warner Observatory was built in 1883 at a cost of \$100,000, and furnished with a telescope costing \$13,000 more. The Reynolds Library was incorporated in 1884, and opened to the public in 1886. The Central Public Library has about 10,000 volumes, the Law Library 10,000, the University Library 22,000, and the Theological Seminary Library 21,000. The Reynolds Memorial Chemical Laboratory has just been added to the Uni-

versity buildings at a cost of \$25,000, and Rockefeller Hall within a few years to those of the Theological Seminary at a cost of \$38,000. Among other new buildings are the Powers Hotel, which cost \$630,000, and the Warner Building, \$500,000. A Government Building, to cost \$500,000, is in process of erection. A new street has been opened near the center of the city at a cost of \$165,000. The semi-centennial of the city's incorporation was celebrated in 1884. Eight railroads enter the city. In 1882-'83 the tracks of the New York Central through the greater part of the city were elevated, and a new train-house and depot were built, at an entire cost of about \$2,000,000, the streets, river, and race being spanned by iron bridges, and 38,812 yards of masonry built in retaining-walls. The New York, Lake Erie, and Western has a new train-house and depot in process of construction. Railroads to Lake Ontario and Irondequoit Bay have multiplied cottages and hotels at these resorts, and the travel often amounts to several thousand passengers a day. There are six banks of circulation and discount, with a total capital and surplus of over \$2,000,000. Four savings-banks, in their reports of July 1, 1886, show deposits of \$19,623,962, surplus \$2,890,737, and 41,071 depositors. The savings of many citizens go into the loan and building associations, of which there are 42. Rochester owes the beginning of its prosperity to the water-power afforded by the falls of the Genesee. It was formerly noted for its manufacture of flour, being at one time first in the country and even in the world in that manufacture. This is still an important industry, although it has relatively declined. The nursery business done here exceeds that of any single State except New York. Some of the leading seed-houses of the country also are located here. A large amount of men's clothing, boots and shoes, beer, tobacco, proprietary medicines, and perfumery are manufactured. In clothing, Rochester does an amount of business which gives it rank as the fourth city in the Union in this respect. Following are some statistics of 1880:

MANUFACTURES.	Capital.	Value of products.
Clothing, men's.....	\$1,976,200	\$4,342,000
Boots and shoes.....	1,180,940	8,686,985
Flouring- and grist-mill products.....	568,500	2,550,515
Liquors, malt.....	1,083,071	1,411,992
Foundry and machine-shop products.....	988,500	1,262,129
Tobacco, including cigars and cigarettes.....	582,975	1,837,470
Carpentering.....	194,075	1,099,000
Printing and publishing.....	474,883	660,888
Furniture.....	219,000	647,900
Furniture, chairs.....	200,000	265,000
Patent medicines.....	851,900	597,800
Carriages and wagons.....	564,000	461,989
Bread and other bakery products.....	136,890	381,583
Tin-copper- and sheet-iron ware.....	212,200	328,510
Clothing, women's.....	74,000	298,000
Leather, tanned.....	116,000	265,677
Marble and stone work.....	264,300	247,828
Wood, turned and carved.....	103,200	245,300
Looking-glass and picture frames.....	75,500	207,000
Cutlery and edge-tools.....	204,500	200,700

The whole amount of capital invested in manufacturing was \$13,161,870, the number employed 14,607, and the total value of products \$26,478,266.

Sacramento, a city, capital of California and of Sacramento County, the fourth city in the State, 83 miles by rail east-northeast of San Francisco; latitude $38^{\circ} 33'$ north, longitude $121^{\circ} 20'$ west. The population, in 1875, 16,283; in 1886, 22,490. New and important buildings are the State Printing-House and Exposition Building, and the E. B. Crocker Art-Gallery. New institutions are a public high-school, a business college, and an art school. There are large shops for the manufacture of furniture, one of the largest potteries in the State, and flouring and woolen mills.

Saint Joseph, a city, port of entry, and capital of Buchanan County, Mo., on the great east bend of Missouri river, 260 miles west by north of St. Louis, and 390 miles west southwest of Chicago. The population in 1875 was 19,565; and in 1886 estimated at 60,000. The city has river communication downward to the Gulf and upward to the mouth of the Yellowstone, and good railroad facilities. New railroads are in process of construction and others are projected. The Government is building a custom-house to cost \$300,000. One of the fish-hatcheries of the State is here. The city has water-works, electric lights, good sewerage, and many miles of paved streets. The citizens have invested \$6,745,000 in the cattle-trade of the West. The wholesale trade has rapidly increased. In 1874 it amounted to about \$18,000,000; in 1885, to \$93,427,623. Manufacturing industries also are developing rapidly. In 1885 the amount of capital employed in them was \$7,040,000; the number of hands, 6,121; the wages paid were \$1,899,000; and the value of products, \$18,861,981. Among the new establishments opened in 1886 are stone-works, coffee and spice mills, several overall and shirt factories, employing 500 to 1,000 hands each, and an additional roller flour-mill.

Saint Louis, the chief city of Missouri, and the commercial metropolis of the central Mississippi valley, on the right bank of the Mississippi river, 20 miles below the entrance of the Missouri, about 175 miles above the mouth of the Ohio, 1,170 miles above New Orleans, and 125 miles east of Jefferson City; latitude $38^{\circ} 37' 28''$ north, longitude $90^{\circ} 15' 16''$ west. The population in 1870 was 310,864, 112,249 of whom were foreigners and 22,088 colored; in 1880 it was 350,518, and in 1886 estimated at 420,000. More than half of the registered voters in that year were foreigners. In 1875 the city was separated from the old county of St. Louis, and under the present charter stands in the same relation to the State as a county. Under the same act the city limits were extended so that the city covers an area of nearly 40,000 acres. The former city of Carondelet is now incorporated with St. Louis. Since

1870 the business portion has spread over many blocks to the west, crowding out the dwellings; and all the churches there, except the cathedral, have followed the movement and built new edifices. In 1885, 1,991 new brick and 504 frame buildings were erected, at a cost of \$7,376,519, nearly double the outlay for that purpose in 1876. Important buildings recently erected are a custom-house and post-office, which cost \$6,250,000; the Exposition and Music Hall Building, which cost over \$800,000; the Art Museum, built at a cost of about \$200,000; the Chamber of Commerce, \$1,500,000; and Armory Hall. The Equitable Insurance Company's building has been built five stories higher, making in all eleven stories, at a cost of \$200,000. The Fair-Grounds have been enlarged to 147 acres, and a race-track made, at a cost of \$300,000. The number of steam railroads entering the city is 34, and of street-railways 14. One of these has a cable line $3\frac{1}{2}$ miles in length. In 1874-'75 there were 57 day-schools, with an average attendance of 24,438, and 21 evening-schools, with an average attendance of 2,644. In 1886 there were 89 day-schools, with an average attendance of 38,468, and 27 evening-schools. The expenditure for schools in the former year was \$792,019; in 1885 it was \$1,109,000. The number of churches has increased from 150 to 216. The trade in horses and mules exceeds that of any other city in the world, and the trade in hay that of any other in the country. St. Louis was made a port of entry under the act of 1870, permitting the shipment of foreign goods in bond to interior ports from the port of first delivery. The value of the direct importations under this act in 1873 was \$1,120,455; in 1874, \$843,313; in 1885, \$2,261,906. The following table shows the advance in the receipts and shipments of bread-stuffs:

ARTICLES.	RECEIPTS.		SHIPMENTS.	
	1874.	1885.	1874.	1885.
Flour, barrels.....	1,683,898	1,032,506	2,981,760	2,551,499
Wheat, bushels....	8,255,221	10,690,677	1,938,541	2,382,609
Corn, bushels.....	6,991,677	26,114,782	4,148,556	20,491,418
Oats, bushels.....	5,296,967	7,888,529	3,027,663	3,680,829
Rye, bushels.....	288,743	726,793	166,183	686,640
Barley, bushels.....	1,421,406	8,017,362	227,418	210,340

St. Louis is noted for the manufacture of flour, in which it is only surpassed by Minneapolis. The amount handled in 1885 was but little more than one half the capacity of the mills—a fact accounted for by the nearly total failure of the winter-wheat crop in the central belt of country from which the supply comes. In 1874 there were twenty-four mills in operation, and the production was 1,573,202 barrels. There are now twenty-seven, eleven outside the limits, with a total capacity of 6,000,000 barrels per annum, capital to the amount of \$2,500,000, and 1,500 employés. The following table shows the receipts and shipments of live-stock, meats, etc., at the two dates:

ITEMS.	RECEIPTS.		SHIPMENTS.	
	1874.	1885.	1874.	1885.
Cattle.....	860,92	836,329	226,675	283,249
Sheep.....	11,491	362,858	85,577	283,391
Hogs.....	1,126,54	1,455,535	453,710	789,487
Pork, barrels.....	51,43	6,632	90,943	.....
Bacon and cut meat, pounds.....	52,104,88	75,319,861	183,486,880	.....
Lard, pounds.....	6,877,56	8,956,536	27,112,210	.....
Hams, pounds.....	.....	6,184,179	.....	.....

The number of hogs packed in 1873-'74 was 463,793; in 1884-'85 it was 442,087. The cotton-trade is large. The receipts in 1874 were 155,943 bales; the shipments, 122,694 bales. The receipts for the year ending Aug. 31, 1886, were 472,640 bales. According to the census of 1870 the number of manufacturing establishments in the county, most of which were within the city, was 4,579; the capital invested, \$60,357,001; and the value of products, \$158,761,013. In 1880 the number of establishments in the city proper was 2,924; the capital, \$50,832,835; and the value of products, 114,333,375.

Saint Paul, a city and port of delivery, capital of the State of Minnesota and of Ramsey County, on both banks of Mississippi river, 2,200 miles from its mouth, 8 miles in a straight line, and 15 by the river, below the Falls of St. Anthony, and 409 miles northwest of Chicago; latitude $44^{\circ} 52' 46''$ north, longitude $93^{\circ} 5'$ west. The population was 12,976 in 1866; in 1875 it was 33,178; in 1880, 41,473; in 1886, estimated at 135,000. Its increase in population is due, in part, to annexation. In 1874 West St. Paul, on the opposite bank, was added, and in 1884 the suburban villages of Hamline, Merriam Park, Union Park, and Macalester. Thirteen railroads center here, and 191 passenger-trains arrive and depart daily. Regular lines of boats ply between the city and St. Louis. The river freightage for 1885 amounted to 70,000 tons. Among new buildings are a hotel that cost \$800,000; a city hall and court-house, \$1,000,000; a Chamber of Commerce, \$230,000; and a Government building of granite. Cable-car lines are in process of construction. Besides the public schools, there are Macalester College, Hamline University, St. Thomas Seminary, four medical colleges, and several parochial schools. St. Paul has a large wholesale trade; there are 412 houses employing 7,165 men, and doing an annual business of \$82,000,000. Its banking capital is \$7,898,885, and the annual exchange business amounts to \$121,000,000. The real-estate business is from \$13,000,000 to \$15,000,000 annually. The principal establishments are extensive stock-yards rivaling those of Kansas City; manufactures of agricultural implements, brass goods, stoves, clothing, lumber, machinery and mill supplies, carriages, brick and tile, sash, doors, and blinds, and boots and shoes. The shops of the Northern Pacific Railway are at St. Paul.

Salem, a city, port of entry, and one of the

shire towns of Essex County, Mass., on a peninsula between two arms of the sea called North and South rivers, and adjacent territory, 16 miles by rail northeast of Boston; latitude $42^{\circ} 31'$ north, longitude $70^{\circ} 53'$ west. The population in 1870 was 24,117; in 1880, 27,563; in 1885, 28,090. An improvement has been made on the North river by the filling up of a large basin thereby making a tract of new land for business purposes and improving sanitation. During the past three years, horse-car tracks have been extended to Marblehead, Danvers, North Beverly, and Wenham. Many new business blocks have been built. The number of pupils in the public schools has increased in ten years from 4,500 to 5,000. The Naumkeag Steam Cotton Company, which ten years ago had 1,438 looms, now has 2,700. Following are statistics of the leading manufactures for 1880:

MANUFACTURES.	Capital.	Value of products.
Leather, curried.....	\$708,050	\$8,589,511
Leather, tanned.....	452,500	2,396,684
Boots and shoes.....	98,000	789,650
Carpentering.....	20,150	185,655
Boot and shoe findings.....	16,250	107,800

The entire amount of capital invested in manufacturing in that year was \$8,978,850; the number of hands employed, 4,181; the total value of products, \$9,926,564. The number of persons employed in sea-fisheries the same year was 320, the amount of capital invested \$209,784, the catch of fresh fish 5,437,800 pounds. The total value of imports in the customs district of Salem and Beverly was \$9,216 in 1879, and \$27,832 in 1880; the value of exports, \$7,719 in 1879, and \$7,080 in 1880. The number of entrances in the foreign trade in 1880 was 96, tonnage, 8,905; clearances 106; tonnage, 10,256; entrances in the coastwise trade, 41; tonnage, 7,107; clearances, 7; tonnage, 1,931. Vessels enrolled in the district, 68; tonnage, 6,650.

San Antonio, a city, county-seat of Bexar County, Texas, on the San Antonio and San Pedro rivers, 75 miles southwest of Austin and 250 miles north by west of Brownsville; latitude $29^{\circ} 25'$ north, longitude $98^{\circ} 29'$ west. The population has risen within the last ten years from 12,256 to 39,991. There are 30 churches, 7 public and 17 private schools, 3 national banks, and 7 newspapers. The city has water-works, electric lights, and street-railroads. It is the principal city of western Texas, and has a large trade; it is entered by three railroads. The Pecos and Rio Grande Mining Company was chartered in 1882; capital stock, \$150,000; paid-up capital, \$100,000.

San Francisco, the chief city of California and the leading seaport of the Pacific coast of America, on a peninsula between San Francisco Bay and the Pacific Ocean; latitude $37^{\circ} 46'$ north, longitude $122^{\circ} 24'$ west. The population in 1870 was 149,473; in 1880, 233,859; in 1886, it was estimated at 301,773, of which

25,000 are Chinese. In 1875 there were 19,000 Chinese. The Chinese population have six large joss-houses, besides many smaller temples and private joss-chambers in the buildings of the various societies. There are several Christian missions in their quarter; the number of converts is 600, and the average attendance at the evening-schools where English is taught is 900. Two Chinese daily papers are published in the quarter. The only railroad terminating within the city is the northern division of the Southern Pacific, to meet the main line in Los Angeles County. Others connect by ferry. There are now ten lines of cable street-roads, and six more are projected. Six of these have been built within six years, and four of them extend to Golden Gate Park. Three climb steep hills inaccessible to carriages. The number of fares collected by the cable and horse railroads in 1885 was \$4,630,000. About 50 ocean-steamer run from the port in regular lines to Japan, China, Australia, the Sandwich Islands, and ports on the Pacific coast; and a large number of small steamers of light draught run to various points on the inland waters having outlets at the bay. The amount expended in new buildings in 1885 was \$7,143,999, an excess of \$5,389,564 over the amount expended in 1880. The number of pupils in the public schools in 1875 was 30,900; in 1885 it was 73,896. The number of books in the Mercantile Library has been increased in the same time from 40,000 to 56,000, that in the Mechanics' Institute Library from 25,000 to 42,000. The Free Library has 68,000. The number of academic institutions has risen from three to seven, the number of medical colleges from two to four, and the number of newspapers and periodicals from 75 to 100. The movement of business is westward on Market Street. Huge retail stores are found nearly as far out as the new City Hall, two miles from the old business center. A radical change has been made in business architecture within a few years. The dread of earthquakes is past, and most of the newer buildings are six and seven stories in height. The new City Hall, begun in 1871, is only partly finished. More than \$3,500,000 has been spent on it, and the estimated cost of completing it is \$4,500,000.

The mint has a capacity for coining 1,000,000 ounces a month. The Stock Exchange, which cost \$900,000, was built when the mining-stock excitement was at its height. The stock transactions have shrunk to small proportions, owing to the failure of the Comstock Silver-Mines. The merchandise exports by sea in 1874 were valued at \$27,000,000; in 1885, at \$35,360,430. In 1884 they had been \$37,238,836; in 1883, \$45,730,194; in 1882, \$55,218,674. The total exports of treasure by sea during 1885 amounted to \$19,955,082, against \$15,716,486 in 1884, and \$10,729,351 in 1883. The value of the exports by sea of important articles was as follows:

ARTICLES.	1874.	1885.
Wheat.....	\$14,000,000	\$16,145,515
Flour.....	2,900,000	5,216,198
Barley.....	289,000	244,100
Wines.....	600,000	629,279
Quicksilver.....	711,000	454,765
Salmon.....	.....	909,100

In 1885, 93,160 centals of barley were sent by rail to Eastern cities, 10,000 flasks of quicksilver, 36,122,580 pounds of wool, 3,059,927 gallons of wine, and 87,500 packages of salmon. The overland merchandise exports for that year amounted to 226,421,000 pounds. The imports of merchandise in 1885 amounted to \$33,586,360. The imports of staple groceries by sea were as follow: Sugar, 185,634,285 pounds; tea, 6,783,784 pounds; rice, 33,871,951 pounds; coffee, 19,423,677 pounds. Of the sugar, 163,028,491 pounds were admitted free of duty from the Hawaiian Islands. The following figures also are given for 1885:

Coinage.....	\$23,508,869
Duties on imports.....	6,215,757
Internal revenue.....	1,783,432
Bank clearings.....	562,844,738
Treasure exports (including shipments by rail to New York).....	20,280,600
Treasure imports.....	9,840,446

The receipts of whale oil and bone for 1885 were the largest on record. Prior to 1879, comparatively few of the Arctic fleet came to San Francisco to discharge, most of them reporting at Honolulu. The number of vessels reporting at San Francisco, in 1874, was 11; in 1876, 7; in 1879, 22; in 1885, 43. For the ten years prior to 1884 the receipts of whale-oil at San Francisco amounted to 114,711 barrels, the largest quantity for any one year being 18,940 barrels. The receipts for 1885 were 30,143 barrels of oil and 448,075 pounds of bone; ivory, 7,066 pounds. Considerable capital is invested in the cod-fisheries in Okhotsk and Bering Seas, and among the Choumagin islands on the coast of Alaska. The number of vessels and the catch for several years are reported below:

YEAR.	No. of vessels.	Fish.
1870.....	21	1,265,500
1875.....	7	504,000
1880.....	8	1,106,000
1883.....	16	1,750,000
1885.....	14	1,874,000

Among the manufactures established within ten years, the most important is the Union Iron-Works at South San Francisco, where are facilities for ship-building equal to any in the country. The materials can be turned out and a man-of-war built with all the latest improvements. Others are the new woolen-mill at Black Point; a large sugar-refinery with improved machinery; a new flour-mill; a whale-oil refinery that works up the entire product from the Pacific coast whaling fleet; wire-works, cable-works that produce the enormous street cables formerly imported from Europe; a cracker-factory, and gas-works. Great prog-

ress has also been made in the manufacture of shirts, boots and shoes, jewelry, artificial stone, cigars, and clothing. The city has had a monopoly of the manufacture of heavy mining machinery. During 1885-'86 an effort was made to supplant the Chinese cigar-makers with white help from Eastern cities, but it failed. The latest addition to the industries is the glass-works, having the most complete machinery west of Pittsburg, and a capacity of eight tons of glassware daily. Several large canneries have been established within ten years, as well as packing establishments for raisins and wineries. The Water-Works Company has begun work on a new dam to be 160 feet high, which will require three years to finish, and will make a reservoir with a capacity of 40 thousand million gallons.

Savannah, a city, capital of Chatham County, Ga., on the right bank of Savannah river, 18 miles from its mouth, and 104 miles by rail southwest of Charleston; latitude $32^{\circ} 5'$ north, longitude $81^{\circ} 8'$ west. The population in 1875 was estimated at 28,235; in 1880 it was 30,709; in 1885, according to local census, 45,000. The depth of the river is being gradually increased by engineering operations at the expense of the General Government, facilitating the ascent of vessels of heavy burden to the city wharves. The chief business is the receipt and shipment of cotton, though the trade in lumber, rice, and naval stores is large. The commerce is growing rapidly, the railroads bringing freight from the interior to connecting lines of steamships. A permanent home for the Georgia Historical Society has been secured, and an Academy of Arts and Sciences established.

Scranton, a city of Lackawanna County, Pa., 167 miles by rail north by west of Philadelphia, and 145 miles from New York; latitude $41^{\circ} 24'$ north, longitude $75^{\circ} 48'$ west. The population in 1870 was 35,092; in 1880, 45,850; in 1885, estimated at 70,350. Scranton has grown up since 1840. A fine court-house has just been finished at a cost of about \$250,000 for the building. A jail to cost about \$200,000 is nearly completed. There are two Bessemer steel-rail mills, two silk-mills, and several car- and machine-shops. An electric street-railway is in process of construction. Four railroads enter the city, and two more are soon to be brought within the limits. Following are statistics of the principal manufactures for 1880:

MANUFACTURES.	Capital.	Value of products.
Iron and steel.....	\$2,294,000	\$5,400,085
Foundry and machine-shop products.....	902,000	630,190
Flouring- and grist-mill products.....	185,000	291,287
Liquors, malt.....	170,000	133,125

The whole amount of capital invested in manufacturing was \$4,470,631; the number employed, 3,549; the total value of products, \$8,561,850.

Somerville, a city of Middlesex County, Mass., on Mystic river, two miles northwest of Bos-

ton; latitude $42^{\circ} 32'$ north, longitude $71^{\circ} 5'$ west. The population in 1870 was 14,685; in 1880, 24,933; in 1885, estimated at 29,992. It was made a city in 1872. About 20 acres of flats and marsh, in part the bed of Miller's river, were filled up in 1878-'80. Four lines of railroad touch the city. There are 4 lines of street-railroads, 28 churches, 28 school-buildings, 2 banks, and a newspaper. Following are statistics of the principal industries for 1880:

INDUSTRIES.	Capital.	Value of products.
Slaughtering and meat-packing.....	\$760,840	\$8,702,601
Flouring- and grist-mills.....	29,200	111,400

The whole amount of capital invested in manufacturing was \$1,682,795; the number employed, 1,296; and the entire value of products, \$5,852,535. The total valuation of property was \$18,590,100.

Syracuse, a city, capital of Onondaga County, N. Y., at the head of Onondaga Lake and on Onondaga creek, 147 miles west by north of Albany, and 151 miles east of Buffalo; latitude $43^{\circ} 2'$ north, longitude $76^{\circ} 14'$ west. The population in 1870 was 43,051; in 1880, 51,792; in 1886, 78,323. The increase during the latter period is partly due to the annexation of the suburbs, Geddes and Danforth. The new park given to the city, containing 100 acres of rolling land, will be laid out at once. The Syracuse Savings-Bank has a fine building, the cost of which was \$300,000, and the Onondaga County Savings-Bank a still finer one. The Government is erecting a post-office and court-house building of stone to cost \$350,000. The new St. Mary's Church will cost about \$200,000. St. Paul's Cathedral has just been built, at an expense of nearly \$100,000. Four daily newspapers have a circulation of 28,000. The Young Men's Christian Association, of 600 members, has just completed a five-story building at a cost of \$60,000, containing reading and reception-rooms, a gymnasium, and a concert-hall. Syracuse is an important railroad center, 53 passenger and a larger number of freight-trains depart daily from the depot, while the freight-trains of the New York Central pass around the city. The freight shipped by rail in 1885 was about 800,000 tons, and the amount received about 850,000 tons. The Erie and Oswego Canals contribute greatly to the trade of the city. During the year 1885 there were cleared from the port 3,648,193 feet of lumber, 420,886 pounds of bacon, 482,699 barrels of flour, 350,131 bushels of grain and malt, 7,488,102 pounds of bran and ship stuff, 16,403 barrels of apples, 42,598 barrels of potatoes, 279,281,434 pounds of salt, and considerable other raw and manufactured products, including tobacco, gypsum, hops, and dairy produce, the total tonnage being estimated at 1,200,000 tons. In manufacturing industries that of salt has always been prominent in Syracuse. In 1874,

6,029,300 bushels were made; in 1885, 6,934,299. The whole amount made from the time when the State took charge of the springs in 1797 to the close of 1885 is 320,319,886 bushels. The value of other articles manufactured in 1874 was estimated at about \$14,000,000. Following are statistics of the principal manufactures in 1880:

MANUFACTURES.	Capital.	Value of products.
Clothing, men's	\$918,800	\$2,542,483
Tobacco, cigars, and cigarettes	256,830	847,093
Foundry and machine-shop products	608,300	656,831
Flouring- and grist-mill products	149,000	644,065
Salt	1,106,581	626,187
Salt, ground	229,200	266,906
Slaughtering and meat-packing	221,000	620,918
Liquors, malt	589,497	586,295
Carpentering	77,200	515,750
Boots and shoes	96,775	495,582
Carriages and wagons	125,600	825,574

The whole amount of capital invested in manufacturing industries at that time was \$8,186,818; the number employed, 10,966; and the total value of products, \$14,695,674. There are now 14 iron manufacturing companies, a milk association, 2 large and 7 small breweries, and manufactories of shoes, agricultural implements, pottery, and powder, which turn out annually a product valued at \$6,000,000, and employ 3,000 workmen. The value of manufactured articles produced by other establishments, not incorporated, is placed at \$16,000,000. The wholesale trade of the city amounts to \$15,000,000 yearly, and the retail to \$25,000,000. The entire trade of the city, including manufactured products of all kinds, is about \$70,000,000. The manufacture of soda from salt is carried on at the rate of 15,000 tons yearly, the amount of capital invested being \$600,000. There are more than 3,000 business concerns in the city.

Taunton, a city, and one of the shire towns, of Bristol County, Mass., at the head of navigation on Taunton river, 24 miles from Narragansett Bay, and 34 miles, by rail, south of Boston; latitude $41^{\circ} 54'$ north, longitude $71^{\circ} 6'$ west. The population in 1870 was 18,629; in 1880, 21,213; in 1885, 23,674. It is on the Old Colony Railroad, has an important coasting-trade, and is noted for its herring-fisheries. There are eight cotton-factories. Other articles manufactured are iron products and brick and tile. More tacks and small nails are made in Taunton than in any other place in the world, and two fifths of all the shoe-buttons used in the United States are made there. The table below shows the statistics of the principal manufactures in 1880:

MANUFACTURES.	Capital.	Value of products.
Cotton goods	\$690,000	\$1,856,881
Foundry and machine-shop products	1,099,300	1,725,826
Iron nails and spikes, cut and wrought	560,000	998,375
Brick and tile	207,100	145,792
Flouring- and grist-mill products	28,500	161,922

The entire capital invested in manufacturing industries was \$4,086,134; the number employed, 5,154; the total value of products, \$7,618,953.

Toledo, a city and port of entry, capital of Lucas County, Ohio, on the Maumee river, 5 miles from its mouth in Maumee Bay, and 8 miles from the western extremity of Lake Erie. Its population was 31,584 in 1875; in 1880, 50,137; in 1886, 76,000. The city has communication by fifteen or more railroads, the Miami Canal, and the lakes. The shipping has increased so far as to outgrow the old channel to the lake, and a Government appropriation of \$110,000 has been made to begin work on a new, straight channel, the entire estimated cost of which is \$3,000,000. Toledo has a very large trade in grain. Its receipts of iron-ore for 1885 amounted to 51,000 tons, and of coal, 2,092,421 tons, a falling off from former years in consequence of labor disturbances and depression in the iron business. The receipts of lumber, shingles, etc., for the same year amounted to 400,000,000 feet. The recent discovery of natural gas and oil in immense quantities in northwestern Ohio promises to give Toledo greatly increased facilities for manufacture. A company has been incorporated having a franchise from the city, open to all competitors, for furnishing natural gas to Toledo from points nearer by more than half than the nearest points to Pittsburg. This company owns the largest producing gas-well yet bored, about 26 miles from Toledo, and has secured other great wells. Other companies have been formed, and are experimenting in the vicinity. The official statistics of manufactures for 1883 show an increase of nearly double over the census figures of 1880. The number of establishments in 1883 was 642, the capital invested, \$12,000,000; the number employed, 11,804; the value of products, \$23,300,000. These represent 117 classes. In the same year 24 new companies were organized, representing large railroad and manufacturing interests. The production of beer and native wines is very large. Toledo has a manual training-school as part of its high-school course. The first lunatic asylum built in Ohio under the cottage system is here, and has 34 buildings in all, erected at a cost of \$300,000, not including the cost of the grounds. It has also a fine memorial hall to the fallen soldiers of the civil war.

Topeka, a city, capital of Kansas and of Shawnee County, on both sides, mostly the south side, of Kaw or Kansas river, 65 miles west of Kansas City, 45 miles southwest of Leavenworth, and 300 miles west of St. Louis. The population in 1875 was 7,272; in 1880 it was 15,452; in 1886, including the suburbs, it was 32,106. It is on 4 railroads, 2 of which were completed in 1886. There are about 7 miles of horse-railway, and a company is organized to build and operate a cable-road on the principal streets. The city has 23 church-buildings; 4

daily, and 22 weekly, monthly, and quarterly publications, and a free library of over 6,000 volumes. The State Art Association is located here. Besides public and parochial schools, Topeka has business colleges, Bethany College for girls, and Washburn College for both sexes. The State Reform School is here also. The Government has built a post-office and courthouse, and the central portion of the State-House, of which one wing was finished in 1867 and the other in 1882, is now in process of erection. The shops of the Atchison, Topeka, and Santa Fé Railroad Company, where locomotives, cars, and all kinds of railroad machinery and tools are made, are here. There are also five large flouring-mills, several foundries, planing-mills, and factories for making agricultural implements and sash and doors, and other smaller manufacturing establishments.

Troy, a city, capital of Rensselaer County, N. Y., on the east bank of Hudson river, at the head of steamboat navigation and of tide-water, 151 miles by the river north of New York city, and 6 miles north of Albany; latitude $42^{\circ} 44'$ north, longitude $73^{\circ} 41'$ west. The population in 1870 was 46,465; in 1880, 56,747. It is entered by 4 railroads. The iron industries of Troy are very important. In 1880 there were 36 iron and steel working establishments and machine-shops. Two new blast-furnaces are now in process of erection, and the Bessemer Steel-Works have been enlarged and remodeled. Horseshoes are made to an extent unequalled elsewhere. The Troy Car-Works are at Green Island, on the opposite side of the river. The annual product of the shirt and collar business is now valued at \$10,000,000; the pay-rolls of some establishments amount to \$1,000 a day each. The largest manufacture of mathematical instruments in the country is here, and one of the largest globe manufacturers. The following table gives the statistics of some of the principal industries for 1880:

MANUFACTURES.	Capital.	Value of products.
Iron and steel.....	\$4,550,000	\$8,702,189
Foundry and machine-shop products.....	2,423,700	3,228,848
Shirts.....	874,000	2,919,591
Furnishing goods, men's.....	830,000	2,636,614
Liquors, malt.....	809,750	895,889
Clothing, men's.....	210,550	654,436
Paper.....	525,465	546,828
Tobacco, cigars, and cigarettes.....	163,025	406,661
Hosiery and knit goods.....	144,000	391,390
Flouring- and grist-mill products.....	183,200	367,855
Bread and other bakery products.....	73,200	358,013
Printing and publishing.....	245,888	810,700
Carpentering.....	48,300	807,533
Slaughtering and meat-packing.....	98,000	259,161

The entire amount of capital invested in manufacturing was \$13,418,853; the number employed, 22,434; and the total value of products, \$26,497,163.

Utica, a city, and one of the capitals of Oneida County, N. Y., on the south bank of Mohawk river, 96 miles by rail west-northwest of Albany; latitude $43^{\circ} 5'$ north, longitude $75^{\circ} 13'$ west. The population in 1870 was 28,804;

in 1880, 33,914; by local enumeration in 1885, 39,529. It is on the Erie Canal and New York Central and West Shore Railroads, and has communication northward and southward by other railroads. There are many newspapers, three of which are daily, and 34 public schools; the attendance in all schools averaged 3,727 in 1880. The city has a large trade in the products of the surrounding country, Oneida county standing third in the Union in 1880 in the value of its farm-products. Utica is the buying and shipping point for a large dairy country in which there are many cheese-factories. Hops also are largely grown. Following are statistics of some of the principal manufacturing industries for 1880:

MANUFACTURES.	Capital.	Value of products.
Clothing, men's.....	\$981,300	\$2,256,875
Boots and shoes.....	557,600	1,125,724
Foundry and machine-shop products.....	589,300	637,721
Sash, doors, and blinds.....	136,000	305,078
Tobacco, cigars, and cigarettes.....	882,500	301,065
Liquors, malt.....	160,660	219,000
Printing and publishing.....	216,500	197,007

The whole amount of capital invested in manufacturing was \$5,905,635; the number employed, 6,710; the total value of products, \$8,873,306.

Watertown, a city, capital of Jefferson County, N. Y., on both sides of Black river, 7 miles above its mouth on Lake Ontario, 145 miles northwest of Albany; latitude $43^{\circ} 58'$ north, longitude $75^{\circ} 54'$ west. The population in 1870 was 9,336; in 1880, 10,697; in 1885, 12,219. There are 12 churches, 9 graded schools, with nearly 2,000 pupils, one daily and four weekly newspapers. Watertown has a large post-office business for a city of its size —\$25,000 a year; it is said to be the smallest city having a postal-carrier system. A new State Armory and a new County Clerk's Office cost each \$25,000. A fine opera-house has recently been built and the "Henry Keep Home" for aged people, the gift of private charity; it has accommodations for 65 inmates and a farm of 35 acres; the building cost \$26,000. A two-mile boulevard leading to the cemetery has been completed, at a cost of \$10,000. Watertown is the center of a rich agricultural region, the dairy interest predominating. Transportation facilities are afforded by two railroads and branches. The manufactures are aided by the water-power afforded by the river, which has a fall of 112 feet within the city. Fully one third of the population are supported by these industries. Among the leading ones are the manufacture of sewing-machines, paper, wagons and buggies, steam-engines, Hitchcock lamps, vacuum-brakes, thermometers, saddlery, foundry and machine-shop products. About 25 tons of paper are made in a day. Pulp is made from spruce, to be used in the manufacture of paper. About 7,000 wagons are made in a year, 35,000 sewing-machines, and 50,000 expensive

metal lamps with clock-work interiors. A factory for manufacturing printing-presses on a large scale has just been established. There are four national banks with an aggregate capital and surplus of about \$715,000, and one savings-bank with deposits of \$1,141,558.

Wichita, a city, capital of Sedgwick County, Kansas, on Big and Little Arkansas rivers, in the southwestern part of the State, 50 miles north of the boundary-line between Kansas and Indian Territory. The town was laid out in 1870, and organized in 1871 with a population of 500. The enumeration of 1886 showed a population of 25,000, making it the third city in the State. There are 14 churches, 6 schools with 3,800 pupils, an academy, a college, a court-house, and an opera-house with a seating capacity of 700. Six railroads enter the city, and 5 others are in process of construction. There are 7 banks, with an aggregate capital of \$2,000,000; clearances, \$500,000 a week. Chief exports are flour, corn-meal, wheat, corn, cattle, horses, mules, hogs, sheep, dairy products, vegetables, and fruits. The 5 flouring-mills turn out 650 barrels of flour a day. The 5 grain-elevators handle nearly 2,000,000 bushels of grain a year. There are 3 foundries and machine-shops, and 2 carriage and wagon works. \$2,300,000 has recently been expended in new buildings, a public park, a fair-ground, water-works, a street-railway, and other improvements.

Wilkesbarre, a city, capital of Luzerne County, Pa., on the North branch of Susquehanna river, about 100 miles north by west of Philadelphia; latitude 41° 14' north, longitude 75° 56' west. The population in 1870 was 10,174; in 1880, 23,339; in 1886 it was estimated at 32,000. It has communication by 5 railroads, and 2 lines of steamers ply between it and Nanticoke, 9 miles below. The growth and prosperity of the city are due mainly to the coal-mining interests. Local industries and trade are chiefly confined to coal and mine and railway supplies, such as lumber, powder, cars and mining implements. Axe-works have recently been established, and lace and silk factories. In 1880 the whole amount of capital invested in manufacturing was \$1,146,500, the number employed 645, and the total value of products \$1,133,344, of which \$297,660 was of foundry and machine-shop products.

Wilmington, a city and port of entry, capital of New Castle County, Del., the chief city of the State, at the confluence of Christiana and Brandywine creeks, 28 miles southwest of Philadelphia; latitude 39° 44' north, longitude 75° 33' west. The limits extend to the Delaware river. The population was 30,841 in 1870; 42,478 in 1880; in 1886 it was estimated at 52,000. Four railroads enter the city; the Baltimore and Philadelphia has an iron bridge over the Brandywine. There are 23 public schools. A court-house was built in 1880, and the courts and records were removed from New Castle in 1881. The banking capi-

tal has been increased \$210,000 within a year. There are 2 savings and 6 other banks, 1 safe-deposit and trust-company, and 2 banking-houses. The Christiana is navigable for vessels drawing 14 feet, and the Brandywine for vessels of 7 feet draught, and wharves extend 6 miles along the two creeks. The total value of imports in 1879 was \$24,076, of exports \$35,467; the value of imports in 1880 was \$7,738, of exports \$270,309. The number of vessels registered, enrolled, and licensed in the district in 1880 was 182, with tonnage of 16,287. The Brandywine has a fall of 120 feet within 4 miles of the city, and mills and factories are placed along its banks. Several old flouring-mills have recently been removed, and new ones built in their places with improved machinery. The match-factories have been enlarged, the car-wheel works have been removed outside the city line and increased in capacity; new rolling-mills have been built and old ones enlarged. Several new morocco-factories have been erected, and another is in process of building. The ship-yards and car-shops also have been enlarged. New enterprises are pulp-works and a fiber company. Following are some statistics of industries for 1880:

MANUFACTURES.	Capital.	Value of products.
Iron and steel	\$1,109,469	\$2,004,570
Ship-building.....	905,500	1,974,298
Leather, dressed skins.....	861,500	1,801,597
Paper.....	2,448,000	682,905
Foundry and machine-shop products.....	755,800	671,125
Cotton goods.....	885,000	645,460
Carriages and wagons.....	415,270	479,067

The whole amount of capital invested in manufactures was \$10,744,389, the number employed 7,852, and the total value of products \$13,205,370.

COLOMBIA, an independent republic of South America. The new Constitution of Aug. 5, 1886, deprives seven of the nine sovereign States of the character of members of a confederacy, and converts them into as many provinces, to be ruled each by a governor. It also reduces two of them, Panamá and Cundinamarca, to the condition of territories or national departments, under governors appointed by the President. The republic is consequently now composed of seven provinces and twelve territories. It covers an area of 586,000 square miles, and has a population of 3,500,000, including 50,000 wild Indians.

Government.—The President of the Republic is Dr. D. Rafael Nuñez, re-elected for six years, from December, 1885. The Vice-President is Gen. Eliseo Payan. The Cabinet was composed of the following ministers: Secretary of State and Minister of War, Dr. Don Felipe Angulo; Finance, Dr. Don Antonio Roldan; Secretary of the Treasury, Don Jorge Holguin; Minister of Public Instruction, Dr. Don Domingo Ospina Camacho; Public Works, Dr. Don Felipe F. Paul; Interior, Dr. Don Aristides

COLOMBIA.

Calderon; and Foreign Affairs, Dr. Don Vicente Restrepo. The United States Minister at Bogotá is Hon. Dabney H. Maury; and the Colombian Minister at Washington, Don Ricardo Becerra. The Colombian Consul at New York is Señor C. Calderon; and the American Consul at Panamá, T. Adamson.

Army and Navy.—The strength of the army in 1886 was 3,000 on a peace footing, to be increased in time of war or insurrection by a contingent of 1 per cent. of the population.

The navy consists of the recently plated war-steamer "Boyacá," a steam-yacht, "Rafael Núñez," built in the United States in 1883, and a coasting-steamer.

Finance.—The public indebtedness, on Dec. 31, 1884, was represented by a foreign debt of \$11,000,000, and a home debt of \$15,000,000. The income of the Government during the fiscal year 1883-'84 was \$5,155,000, and the outlay \$4,000,000, leaving a surplus of \$1,155,000. The amount of national-bank notes in circulation in January, 1886, was by decree reduced to \$1,500,000, small nickel coin to take the place of the notes withdrawn and canceled. In a message to the Assembly of Delegates, March 31, President Núñez said he was able to negotiate a 6 per cent. Government loan in London to the amount of £2,500,000, and asked for authority to conclude it. He added that two years' interest would have to be advanced by him, and that 1 per cent. would have to be set aside toward the sinking-fund of the loan, the republic to pledge for the payment of the loan the rights secured it by the Panamá Canal Company, besides a certain percentage of revenue from customs.

Monopoly.—The Government farmed out to a private syndicate of merchants the monopoly of importing alcoholic beverages into Colombia, for an annual rental of \$300,000. The monopoly does not include either wine or beer.

During the summer, rich placer gold-mines were discovered at Bucaramanga and in other localities of the province of Santander.

Railroads.—In addition to the 142 miles of railroad in operation, there is a project on foot for building a line across the republic from the Atlantic to the Pacific.

The gross earnings of the Panamá Railroad in 1885 were \$3,267,922; operating expenses, \$2,655,272; net earnings, \$612,650; interest, \$541,041; balance, \$71,609. The treasurer's statement of Dec. 31, 1884, showed a surplus of \$1,076,557, out of which a 10 per cent. dividend was paid, amounting to \$700,000, leaving on hand, in December, 1885, \$448,166.

Telegraphs.—No sooner was the country pacified than a new line of telegraph was added to the 2,376 miles then in operation, bringing into direct communication the provinces of Antioquia and Cauca by connecting Manizales with Cartago, a line very much needed on account of the large trade in cattle, cocoa, salt, etc., carried on in that region.

New Ports.—By decree of the President, dated

at Bogotá, July 5, 1886, the ports of Arauca and Orocué were thrown open to commerce as ports of entry and export. They are on the banks of the Casanare, a tributary of the Orinoco. The import duty is the same as per general tariff, less 40 per cent., but with the additional 25 per cent. war duty.

Tariff.—The new tariff became operative on Oct. 1, 1886, the duties ranging from one cent to \$1.20 the kilogramme. The free list includes articles for the use of the Government, property of the representatives of other Governments, and the natural productions of such countries as may enter into reciprocal treaties. All articles not enumerated are dutiable at the highest rate—namely, \$1.20 per kilogramme. The importation of money of inferior standard is prohibited, as is also machinery for making money, arms, and munitions of war. Machinery exceeding 1,000 kilogrammes in weight pays one cent. per kilogramme; not exceeding 1,000 kilogrammes, it pays five cents.

Extra Duties.—The extra import duty of 15 per cent. on goods consumed in the province of Bolívar since 1878 was, on Jan. 1, 1886, reduced to 10 per cent.; but efforts since made to abolish it altogether have failed to receive the consent of the Central Government at Bogotá. On the other hand, the extra 50 per cent. levied on internal taxes paid in the same province as a war-tax has been abolished.

The Government has received proposals from a New York merchant, who asks for a concession to remove the bar obstructing the entrance of vessels at Barranquilla into Magdalena river. No Government aid is to be extended to the enterprise, which proposes to be allowed to levy tonnage-dues for the improvement.

New Steamship Line.—In September the new line of the French Transatlantic Steamship Company was established from Marseilles. One of the steamers is to call monthly at Barranquilla via Italian and Spanish ports, the ports touched at being Genoa, Naples, Cadiz, Teneriffe, Port de France, Trinidad, Barcelona, La Guayra, Barranquilla, and Colon.

Commerce.—The following tabular statement shows Colombian trade with some of the leading commercial countries:

FROM COLOMBIA INTO—

YEAR.	United States.	England.	France.
1881	\$5,991,890	\$6,677,505	\$5,016,006
1882	4,961,470	5,452,281	5,893,696
1883	5,171,455	8,809,798	4,188,336
1884	8,891,543	2,105,533	4,283,606

TO COLOMBIA FROM—

YEAR.	United States.	England.	France.
1881	\$5,383,183	\$5,999,776	\$6,214,845
1882	6,405,346	5,296,660	5,959,846
1883	6,563,971	6,099,414	5,954,852
1884	6,881,821	5,944,571	7,169,408

The United States trade with Colombia in two years has been:

FISCAL YEAR—	Imports from Colombia into the United States.	Domestic exports from the United States to Colombia.
1886.....	\$3,008,921	\$5,294,798
1885.....	2,342,077	5,397,412

The Panama Canal.—M. Ferdinand de Lesseps, President of the Universal Inter-oceanic Panama Canal Company, by letter dated Paris, January 11, asked the President of the New York Chamber of Commerce, James M. Brown, to appoint a delegate or delegates to accompany him on his voyage to Panama, where he intended to begin the period of final execution of the maritime canal, a similar request having been addressed to the Chambers of Commerce of France. He added that delegates from England and Germany would join the French representatives. The invitation was accepted, and John Bigelow, of New York, was appointed as delegate. M. de Lesseps arrived at Colon on February 17. Some months previously he had applied to M. Brisson, then Prime Minister of France, for the Government sanction, necessary, according to French law, before lottery bonds can be issued by a company. The amount that M. de Lesseps desired to raise in this way was 600,000,000 francs. The Government sent out a commission composed of eminent engineers to make a thorough inspection of the work, the four gentlemen composing it being M. Armand Rousseau, Special Commissioner, Inspecteur-Général des Ponts et Chaussées; Chief-Engineer M. Jaquet; Ingénieur Luys, and Major de la Semette. Having concluded their labors, they arrived at New York on February 20 on their return to France *via* Canada.

Mr. Bigelow accompanied M. de Lesseps and party to La Boca, on the Pacific side, returning to New York early in March, about the time of M. de Lesseps's departure for France. On June 27 the committee elected by the French Chamber of Deputies to report on the bill proposed by the Minister of Public Works, authorizing the Panama Canal Company to issue a lottery loan of 600,000,000 francs, met and elected M. Germain Casse president of the committee, and M. Compayre, Secretary. Both these gentlemen were decidedly averse to the project; in fact, out of eleven members composing the committee, eight were strongly against the bill, two favorable under certain conditions, and but one unconditionally so. Simultaneously the report of M. Rousseau was distributed to the members of the Chamber. Its conclusions were, that the canal is a possible undertaking; that it is now carried to such a point that its abandonment can not be thought of, as such a course would bring disaster not only to the share-holders of the company, who are nearly all Frenchmen, but also to French influence in America; that it is evident that, if the enterprise were allowed to fail, it would be immediately taken up by a foreign company, which would reap the credit and profit from it. But

the Government has no control over the plans and contracts of the company, and ought to give no guarantee of any kind to the company. M. Rousseau concluded the report by declaring that the completion of the canal, with the financial means and limit of time calculated by M. de Lesseps, seems to him more than problematical, unless the company makes important alterations in its present plans. When the committee asked that contracts should be produced in order that it might examine them, M. de Lesseps refused to show them. The Government therupon withdrew the Panama Canal Lottery Loan bill from the Chamber of Deputies.

Meanwhile, April 16, Mr. Bigelow had presented to the New York Chamber of Commerce his report, in which he says:

All the conditions under which this work is to be conducted are peculiar and exceptional. It is in a foreign state, under a weak and unsettled government, in one of the most unhealthy regions on the continent, subject to earthquakes, within 450 miles of the equator, and under a tropical sun, where acclimated laborers only are of any service. Should they not increase the present average, it will take from ten to fifteen years to finish their contract, even should they suffer no unforeseen delays or interruptions. It certainly is not progressing at present at a rate which warrants the hope of its completion in 1889.

On July 29 a meeting of the Panama Canal Company was held at Paris. M. de Lesseps read a voluminous report, in which he said there is not a section of the canal which is not contracted for, and that the sanitary condition is satisfactory. During the past year the mortality was 5½ per cent, not more than the average mortality on public works in Europe. The report cited statements of M. Levasseur and the Americans—Admiral Davis and Engineer Kelly—and the Dutch engineer of the Vannehus estates, to prove that the receipts will amply suffice to pay large interest on all the capital—probably 6 or 7 per cent. on a capital of two milliard francs or, in other words, do a traffic of 7,250,000 tons, and earn therefrom a revenue of 108,000,000 francs.

M. de Lesseps pledged himself to open the canal in 1889, within the cost estimated by the Congress of 1879.

The aggregate expenditure, during the fiscal year 1884-'85, was 141,852,777 francs, and, as in former years, since the incorporation of the company, there had been spent 354,009,199 francs, the total amount reached, on June 30, the sum of 495,862,076 francs. But there is to be deducted from it the sum of 24,729,260 francs not yet paid, reducing the actual disbursements to 471,132,816 francs. Deducting the latter from the share capital of the company, the 250,000 bonds of 1882, the 3 per cent. bonds of 1883, and the 341,292, 4 per cent. bonds of 1884—together, 713,104,368 francs—there remained on June 30, 1885, the sum of 241,971,552 francs. The new 6 per cent. loan was for the time being limited to 225,000,000 francs, and placed on the market during the last week of July by all the French

banking institutions, except the Crédit Foncier de France, at between 440 and 450 francs per bond of 1,000 francs. Every two months a drawing is to take place during forty-two consecutive years, the winning numbers to be paid in full the nominal value of the bonds of 1,000 francs, 6,000 bonds to be thus drawn during the first year. The fluctuations in the value of 5 per cent. Panama Canal bonds on the Paris Bourse had been : January, 1885, 390 ; October, 383 ; January, 1886, 372 ; June, 30, 380 ; July, 1, 367, and July, 12, 310. On September 20 the last installment was called on 500 francs Panama Canal shares.

Out of the 458,802 new bonds negotiated in August, 1886, 200,000 were paid at once, 26,000 shortly afterward; in October, 230,000 more had been paid.

Arbitration.—The difficulty that had existed for some years between Colombia and Costa Rica, about their frontier, was submitted in September to the arbitration of Spain.

During the insurrection of 1885 an Italian merchant, Signor Cerruti, was imprisoned because he had espoused the cause of one of the rebel pretenders. The commander of the Italian man-of-war "Flavio Gioja" interfered in the matter, threatening the port of Buenaventura on the Pacific with bombardment if Cerruti were not handed over to him. The demand was complied with; but when he landed at Panamá and was about to take passage on board the steamer "Ilo," he was thrown into prison by the Colombian authorities. Meanwhile all his property in the province of Cauca had been confiscated by the Government. Italy had dispatched several men-of-war to Colombian waters, and the complication was assuming a threatening aspect, when a protocol was signed between the Italian ambassador at Paris, and the Colombian ambassador, laying down the bases of an agreement, which has been submitted to the arbitration of Spain.

Bogotá, a city founded in 1542, and once called Santa Fé de Bogotá, capital of the United States of Colombia and of the State of Cundinamarca; population 100,000. It is situated in latitude $4^{\circ} 36' 06''$ north, longitude $74^{\circ} 18' 59''$ west, 8,870 feet above the level of the sea. It is built on a plateau of the Andes, 80 miles from the mouth of Magdalena river, and at the base of high mountains at the extreme eastern side of the great plain of Bogotá. The temperature ranges from 52° to 62° F., summer and winter. The showers that fall from a cloudless sky are called *para mitos*, and blow over from the barren plains in the rear of the mountains, where, in summer, rain is constantly falling. The gardens abound in heliotropes, rhododendrons, fuchsias, violets, and an infinite variety of flowers which bloom perennially. The exports consist of gold, silver, copper, platinum, tobacco, bark, coffee, dye-wood, cocoanuts, rubber, hats, and other articles. Emeralds of the finest luster and the greatest value are found. All freight is transported on the backs of mules

from the mouth of Magdalena river, 27 Spanish leagues, over the mountains, by a rough, winding, steep, and narrow road, which in some places is worn deep into the sandstone rock. Pianos, the freight on which is \$1,000, are common in the houses. The streets are without vehicles, except street-cars drawn by mules. The town is built principally of adobe houses, with elegant interiors, reached through court-yards tastefully laid out in flower-gardens. The buildings, mostly ancient, are rarely more than two stories in height, with the exception of the convents and churches. They are unpainted, and at a distance the city is almost invisible. They are roofed with tiles, and have low, dark portals, true specimens of Spanish architecture, being built in the form of a square inclosing the court-yard and garden. The streets, forming at intervals the sides of plazas, are narrow, paved with cobblestones, and have a ditch running through the middle, for drainage, rendering it impossible for carriages or carts to pass through them. The common people wash their clothes in these drains. Pipes supply clear water from the sides of the buildings at the corners of the plazas, fed by a reservoir a few miles from the city. The water is carried in jars from these pipes to the houses on the backs of women. The streets are lighted by gas. There is no residence quarter, so called, fine residences and hovels confronting each other indiscriminately. On one side of the Grand Plaza, occupying the center of the city, are the cathedral and postal buildings; on the other sides the President's Palace and Government houses. In the square is a statue of Bolívar, Liberator of Colombia, in bronze, mounted on a large square pedestal composed of various colored stones sent from the several States of the Republic, on which are cut the names of his battles. It was executed in Italy at the expense of a private individual. The cathedral is 300 feet long and 100 feet wide, and is noted for its magnificent decorations and paintings brought here by the Spaniards. There are 37 churches, two of them situated 1,500 feet above the city, on the highest mountains. The popular religion is Roman Catholic, but there is no religion of state. There are 400 resident priests. The President of the Republic resides in the Government Palace. The Senate holds its sessions in the Convent of Santo Domingo, which also accommodates the State, Treasury, and War Departments. The Senate-chamber is large and finely furnished. Above the President's chair are the arms of Colombia. On the walls are life-sized portraits of Bolívar and Santander. The sessions of the Representatives are held in an old Jesuit college, in a hall inferior to the Senate-chamber, but ample and suitable. The Opera-House is furnished with boxes extending in two tiers entirely around the house, with the stage in the center. The market is a conspicuous building, and has on sale the vegetables and fruits of two zones, torrid and temperate.

Fish, crabs, and shrimps are sold in little netted bags. The necessaries of life, although brought here at great expense, are cheaper than at the coast. There are no printed signs over the doors, as the natives can not read; but, instead, are animals painted in large proportions. Hundreds of mendicants lounge in the streets. The police regulations are very strict, the men, on duty by night only, being signaled by a bell to change their posts at the corners of the streets every fifteen minutes. They are armed with lassoes and short bayonets. There are no letter-carriers, for the houses are not numbered, but there are letter-boxes at the general post-office. There are six newspapers, including the official organ of the Government. A large proportion of the printing is on hand-bills, which are posted on the street corners, by individuals on their private affairs as well as by the Government on affairs of state. In the revolution of 1885, fifty different hand-bills were posted daily on the walls of the city. Most of the newspaper reading is done at the street corners by means of these bulletins, and for the announcement of a death the hand-bills are bordered with black. The people dress in the latest Paris fashion, but the ladies have not yet discarded the graceful mantilla. There are convent-schools of a high order. The University of Bogotá, an institution of wide influence, has an astronomical observatory, which has no equal except in the National Observatory in Washington. The Foundling Hospital, capable of accommodating several hundred infants, is no longer used for the purpose. The military are not of the average height of United States troops, but are well drilled, having been trained by a United States army officer who spent three years in the city for that purpose. The officers' uniform is a dark-blue dress-coat lined with scarlet, scarlet epaulets, and scarlet stripes on the dark-blue trousers. The arms used are those known as the Springfield, English, and Austrian patterns.

COLORADO. State Government.—The following were the State officers during the year: Governor, Benjamin H. Eaton, Republican; Lieutenant-Governor, Peter W. Breene; Secretary of State, Melvin Edwards; Treasurer, George R. Swallow; Auditor, Hiram A. Spruance; Attorney-General, Theodore H. Thomas; Superintendent of Public Instruction, Leonidas S. Cornell; State Engineer, E. S. Nettleton; Railroad Commissioner, William B. Felker; Forest Commissioner, E. T. Ensign; Supreme Court: Chief-Justice, William E. Beck; Associates, Joseph C. Helm and Samuel H. Elbert.

Population.—The total population of the State, as shown by the census of 1880, was 199,327. The population on June 1, 1885, was 243,910, an increase of 49,583, or 25.56 per cent., in five years. The present population is divided among the races as follows, Indians upon reservations not included: White, 239,585; negroes, 3,262; Chinese, 861; Indians, 200. It

is further divided as to sexes as follows: Males, 144,781; females, 99,129.

Political.—The Republican State Convention met in Denver on the 28th of September, and nominated the following ticket: For Governor, William H. Meyer; Lieutenant-Governor, N. H. Meldrum; Treasurer, P. W. Breene; Secretary of State, — Rice; Auditor, D. P. Kingsley; Attorney-General, Alvin Marsh; Superintendent of Public Instruction, L. S. Cornell; Congressman, George D. Symes.

The Democratic State Convention met at the same place on the 5th of October, and nominated the following ticket: For Governor, Alva Adams; Lieutenant-Governor, L. H. Gillespie; Secretary of State, Jerry Mahoney; Treasurer, James F. Benedict; Auditor, Casimero Barelli; Attorney-General, Col. Stirman; Congressman, Myron W. Reed. The following are among the resolutions adopted:

Resolved, That we favor the coinage of silver on the same terms as gold, and the adoption in the first instance of unlimited silver coinage by our own Government, to be followed by active measures to bring about its consideration as an international subject.

We denounce the corrupt and wasteful extravagance of successive Legislatures which Democratic members have vainly opposed. The State Legislature has been Republican since 1876. Each successive session has squandered the money of the people with reckless and increasing wastefulness, until the annual expenses of the State are wholly beyond reasonable bounds. To provide places for an army of parasitical Party workers, official positions have been multiplied beyond the necessities of government and far beyond the ability of the State to pay for. As a consequence, the State tax levy of nearly five mills is in excess of the constitutional limitation and void, and the credit of the State is threatened. We pledge the Democratic party, its nominees, and its representatives in the General Assembly, to a reduction of expenditures and of taxation to honest and legal limits.

That the interests of the people of this State, collectively and individually, demand immediate legislation with the power to summarily enforce its observance, whereby railroad corporations shall be limited in their power to fix rates for passenger and freight traffic, such rates to be arranged with due regard as well to the actual amount of capital invested in said companies, as to the amount and cost of business transacted; to prevent and punish fictitious capitalization of said companies, discriminations or rebates in rates, either as between individuals or localities; to compel the granting of common privileges and rights to all classes of people, as well as an interchange of business with connecting or competing terminal lines; to enforce a strict compliance with all constitutional and other legal requirements, having for their object the public weal and the restraint of power, and to prevent any further identification of the business of common carriers with that of dealers in the commodities to be carried. We demand legislation upon this important subject that may be enforced either by means of a commission properly appointed, or directly by summary proceedings in the courts of justice.

That the definition of conspiracy is not confined to strikes and impulsive efforts of the poor by violence to better their condition, but extends as well to the secret conclaves of capital to pool and combine their franchises in aid of unjust exactions from shippers and passengers.

That the interests of the farming classes and of our cities demand that the next General Assembly shall by proper legislation regulate and fix the charges to be

made by ditch, irrigation, and other water companies, for water, so that such charges shall not exceed a fair per centum upon the amount of capital actually invested in such enterprises.

That we demand speedy measures to abolish, by fair purchase, the Indian reservations remaining in Colorado, especially the strip of land in La Plata County, as useless to the Indian tribes and a constant threat and menace to the peace and security of the southern border.

That the only practical solution of the convict-labor question is to keep the convicts employed in some labor not in competition with any recognized industry of the people, and that this can be done by their organized, systematic, and permanent employment in the construction and improvement of public roads.

There was also a Prohibition ticket in the field. The Democratic candidate for Governor was elected by a small plurality, while the Republican candidates for the other places were successful.

Wool-Growers.—The third annual convention of the Colorado State Wool-Growers' Association was held at Greeley, on Oct. 5. It was organized in Denver, on March 12, 1884. Its sessions have not been very well attended. The president gave the following account of the business in the State:

Looking back to the year 1875, the assessors returned from the various counties of the State 424,977 sheep. The numbers increased rapidly in the following years, the returns for 1879 being 779,935, and in 1880, 782,640. The severe drought of 1880 caused losses and exportation, so that the returns for 1881 were reduced to 634,342, increasing to 706,048 in 1882 and 834,785 in 1883. The repeal of ad valorem duty on wool checked the increase, and in 1884 there was a falling off in numbers to 822,273. The flockmasters, notwithstanding the discouragements, renewed their grip, and returned, for 1885, 863,926 sheep. The returns for 1886 are not yet complete. I have been unable to secure accurate information regarding the wool-clip, but 7,000,000 pounds is doubtless a fair estimate for this year's clip. It is impracticable to secure accurate figures regarding the number of sheep sold as surplus from the flocks of the State. The data given show that the Colorado State Wool-Growers' Association represents an invested capital of more than \$5,000,000, and a yearly revenue of more than \$2,500,000.

The following resolutions were adopted as the sense of the meeting:

Resolved, That the great interest of wool-growing in the State, second only in capital invested and annual revenue to mining and cattle-breeding, demands the continuance of the Association to protect and promote our interests, and that every wool-grower in the State ought to join the Association and contribute his share to the common defense.

That we reiterate our demand for the restoration of the tariff of 1887 on wool and woolen goods, as being the best possible adjustment of the interests of manufacturers and producers of wool, evidenced by the unparalleled growth and prosperity of both interests from the date of the adoption of said tariff to the date of its repeal in 1883, and the great disaster to both interests following that repeal.

That the repeal of the bounty on wolf-scalps has resulted in a vast increase in numbers of these pests, and great damage to our flocks; that the rapid increase of these animals not only menaces our sheep, but calves and colts as well, and that the bounty heretofore paid by the State is insignificant compared with the losses we now sustain; we therefore, ask the Legislature, at its next session, to enact a law author-

izing the payment of \$2.50 for each wolf or coyote scalp.

That we respectfully ask of the Legislature at its next session a liberal appropriation for the expenses of the State Veterinary Sanitary Board, to the end that all domestic animals afflicted with contagious diseases may be quarantined and such disease be effectually stamped out.

That in justice to the wool-growing interest, we request that a member of the State Wool-Growers' Association be appointed a member of the State Veterinary Sanitary Board.

That the State Veterinary Sanitary Board be and is hereby requested to adopt a regulation requiring all persons driving sheep into the State to secure from the State Veterinary Surgeon, or a member of the State Veterinary Sanitary Board, a certificate that the flock is free from contagious disease before they cross the boundary of the State.

That it is gross injustice to be compelled to pay \$1.50 and \$1.25 per hundred freight to the Missouri river on our wool, since it is profitably transported from the Missouri river to the seaboard, more than twice the distance, for less than half the freight charge to the river.

The Legislature consists of 18 Republicans and 8 Democrats in the Senate and 25 Republicans and 24 Democrats in the House.

The vote for Congressmen was as follows: George G. Symes (Republican), 27,782; Myron W. Reed (Democrat), 26,929; Joseph Murray, 3,597. Amendments to sections 1, 3, 12, and 14 of Article XI of the Constitution were ratified, and those to sections 5, 24, and 26 rejected. The amendments relate to details of the judicial system. The vote for Governor is not officially canvassed until the meeting of the Legislature.

Cattle.—The number of cattle shipped out of the State in 1885 was 75,579. These required to move them 3,358 cars, and were divided as to class as follows:

Steers	72,857
Cows	21
Bulls	261
Mixed cattle	2,840
Total	75,579

The number of cattle shipped and driven into Colorado during the same period was 132,614. This does not include any cattle which may have passed through the State for parts beyond. By these figures it will be seen that there were brought into Colorado 57,035 more cattle than were sent out during the year. The actual number of cattle slaughtered for home consumption in the State can not be ascertained, but can be closely estimated at 54,560.

The shipments out of the State the previous year did not exceed 60,000.

Finanees.—Colorado has no bonded debt. The assessed valuation for 1885 (Garfield County's returns being unofficial) is \$115,415,929.

The total amount of tax levied for 1886 is \$665,269.48, as against \$640,874.72 for 1885.

The balance in the treasury at the close of the last fiscal term, Nov. 30, 1884, in cash and securities, was \$513,135.61; there was received from all sources during the two years ending Nov. 30, 1886, the sum of \$1,837,395.24, mak-

ing a total of \$2,350,530.85. The total disbursements from the treasury for this period were \$1,515,951.80, leaving a balance at the close of business Nov. 30, 1886, in cash and securities of \$834,579.05. The State debt was:

Outstanding warrants.....	\$594,699 63
Certificates of indebtedness.....	18,483 91
Loco-woed certificates.....	53,690 52
Total.....	\$666,574 11
Less cash in treasury applicable.....	22,236 43

Total indebtedness..... \$644,337 68

The total revenue outstanding to meet this is \$667,822.97. From this the Auditor deducts 20 per cent. as unavailable, leaving \$534,258.38. This leaves the debt payable from the general fund, \$110,879.30 in excess of the revenue.

Railroad Valuation.—The State Board of Equalization placed the following valuations upon the railroads in Colorado in 1885:

BROAD GAUGE.

Burlington and Colorado.....	\$1,883,577 93
Pueblo and Arkansas Valley.....	2,452,192 05
Denver and New Orleans.....	843,274 86
Union Pacific, Union division.....	72,927 97
Union Pacific, Kansas division.....	1,411,204 39
Denver Pacific.....	658,286 02
Golden, Boulder and Caribou.....	42,388 84
Denver and Boulder Valley.....	197,186 75
Denver, Western and Pacific.....	152,615 66
Denver, Western and Pacific (grade only).....	13,665 00
Greeley Short Line and Pacific.....	293,992 24
Greeley Short Line and Pacific (grade only).....	8,500 00
Julesburg division, Union Pacific.....	1,179,929 63
Colorado Central.....	675,350 93

NARROW GAUGE.

Greeley Short Line and Pacific.....	\$75,523 32
Georgetown, Breckenridge and Leadville.....	8,175 00
Georgetown, Breckenridge and Leadville (grade only).....	3,825 00
Denver, South Park and Pacific.....	2,150,342 28
Colorado Central.....	57,407 66
Denver Circle.....	51,048 20
Denver, Utah and Pacific.....	212,967 27
Denver, Utah and Pacific (grade only).....	8,403 50
Denver and Rio Grande.....	7,505,642 21

Total..... \$20,033,164 96

Land-Office.—The United States Land-Office makes the following report of the business transacted during 1885: Number of pre-emption filings, 2,398; number of acres in cash entries, 61,009; number of acres in final homesteads, 21,039; number of acres in original homesteads, 105,580; number of acres in timber-culture entries, 362,258.

Denver Manufactures.—Recent statistics reveal the fact that the city has double the number of establishments it had five years ago, with three times the number of employés, and eight times the capital invested.

Lead.—The production of lead in Colorado has been as follows:

	Tons.	Tons.	
1873.....	50	1879.....	23,674
1874.....	312	1880.....	38,674
1875.....	818	1881.....	40,547
1876.....	667	1882.....	55,000
1877.....	897	1883.....	40,547
1878.....	6,369	1884.....	63,165

To this we may add the product for 1885, which will probably not exceed 57,000 tons, of 2,000 pounds, the Leadville district alone show-

ing a falling off of about 20,000 tons. A very slight gain over 1885 was expected in 1886.

Quarrying.—The work done by the stone department of the Union Pacific Railroad and other quarries in Colorado, is but little understood. Along the foot-hills of the Continental divide, from the Wyoming line to the Raton range, is a series of hog-back elevations. In these upheavals are found inexhaustible quantities of stone and marble, suitable for the manufacture of lime and for building from the rough rubble-stone that sustains the superstructure of buildings, piers, and bridges, to the substantial granite, the various colored sandstone, and the finer varieties of marble equal to that of Tennessee and Vermont.

In almost all cases the material lies above the surface, and the process of quarrying consists in uncovering and removing earth and boulders and revealing the dip of the formation. The Union Pacific Company decided to quarry on its own account and ship directly to consumers, and have established a special department, entitled the "Stone Department, Union Pacific Railroad." The principal quarries are at Stout, where 250 men are regularly employed, the pay-roll being from \$10,000 to \$12,000 per month. There are in addition from 50 to 100 men employed by others, who dispose of their products to the company. The company owns a large area of quarry-ground at Lyons, principally producing red sandstone. Here are employed about 75 men. Ten miles northwest of Loveland, and a short distance south of Stout, the Buckhorn quarries have been opened.

The marble-quarries of Gov. Routt at Marble Glen, ten miles northwest of Fort Collins, are practically inexhaustible, and the deposits of the most beautiful material for building and all kinds of marble-work lie exposed.

There have been transported eastward, during the past three years, about 12,000 car-loads of stone, the value being about \$500,000.

COMMERCE AND NAVIGATION OF THE UNITED STATES.—The total value of the foreign trade during the year ending June 30, 1886, was \$1,314,960,966, being \$4,756,118 less than in 1884-'85. The decline was much less than in the two previous years, the volume of trade having fallen off \$88,494,218 in 1884-'85 from that of the preceding year, when it was \$138,809,014 less than in 1882-'83. The exports of merchandise in 1885-'86 amounted to \$679,524,830, showing a decrease of \$62,664,925. The value of the imports was \$635,436,136, being greater by \$57,908,807 than in 1884-'85. The value of the exports of domestic produce was \$665,964,529 in 1885-'86, as compared with \$726,682,946 in 1884-'85; that of the exports of foreign merchandise, \$13,560,301, as compared with \$15,506,809.

The exports of gold in 1885-'86 were \$42,952,191, as compared with \$8,477,892 in 1884-'85, and \$41,081,957 in 1883-'84. The imports of gold were \$20,743,349 in 1885-'86, \$26,691,696 in 1884-'85, and \$22,831,317 in

1883-'84. The exports of silver in 1885-'86 were \$29,511,219, as compared with \$33,753,-633 in 1885, and \$26,051,426 in 1884; the imports of silver, \$17,850,307 in 1886, as compared with \$16,550,627 in 1885, and \$14,594,-945 in 1884. The total exports of specie in 1886 were \$72,463,410, and the imports \$38,-593,656, showing an excess of exports of \$33,-869,754, as compared with an excess of imports in 1885 of \$1,010,798, and an excess of exports of \$29,707,121 in 1884.

Imports.—The value of free goods imported in 1885-'86 was \$212,159,296, and that of dutiable goods \$423,276,240. The value of manufactured articles imported was \$379,987,-472, and of crude and partly manufactured articles \$255,448,664. The articles that showed the largest increase were sugar, wool, hides and skins, woollen manufactures, and raw silk. There was a marked decrease in the imports of coffee, fish, flax, hemp and jute, and seeds. The imports of sugar and molasses constituted 13·60 per cent. of the total value of imports in 1885-'86; wool and manufactures thereof, 9·15 per cent.; silk and silk manufactures, 7·28 per cent.; coffee, 6·72 per cent.; iron and steel and manufactures thereof, 6·11 per cent.; chemicals, drugs, dyes, and medicines, 5·96 per cent.; flax, hemp, jute, and manufactures of them, 4·87 per cent.; cotton and cotton manufactures, 4·78 per cent.; hides and skins, 4·20 per cent.; fruits, 2·72 per cent.; tea, 2·52 per cent.; wood and manufactures thereof, 1·92 per cent.; India-rubber, 1·91 per cent.; leather, 1·87 per cent.; tobacco, 1·76 per cent.; liquors and wines, 1·58 per cent.; all other articles, 23·05 per cent. The total value of imports was greatest in 1882, when it attained the sum of \$724,639,574, after which the amount declined steadily to \$577,527,329 in 1885, and then rose to \$635,436,136 in 1886. The values of the leading articles imported in 1886, as compared with their importation in 1882, are shown in the following table:

ARTICLES OF IMPORT.	1882.	1886.	
Sugar.....	\$90,451,388	\$80,797,077	
Molasses.....	10,040,511	5,595,670	
Wool.....	11,096,050	16,746,081	
Woollen manufactures.....	87,362,592	41,421,819	
Raw silk.....	12,890,392	18,277,216	
Silk manufactures.....	89,972,506	27,957,939	
Coffee.....	60,664,574	42,672,987	
Iron, and manufactures of.....	44,242,647	38,840,111	
Chemicals, drugs, etc.....	12,322,959	17,318,259	
Flax, hemp, jute, etc.....	23,703,399	9,960,367	
Manufactures of flax, etc.....	789,844	20,963,185	
Raw cotton.....	85,719,791	672,508	
Cotton manufactures.....	27,841,126	29,709,266	
Hides and skins.....	26,699,813	17,318,259	
Fruits.....	19,411,718	17,318,259	
Tea.....	19,392,102	16,020,338	
Wood.....	5,278,401	3,575,006	
Wood manufactures.....	9,254,702	8,647,846	
Rubber and gutta-percha.....	14,264,903	11,888,192	
Rubber manufactures.....	832,024	233,532	
Leather, and manufactures of.....	12,145,761	11,850,703	
Leaf-tobacco.....	6,230,865	7,830,007	
Manufactured tobacco.....	8,116,897	3,852,081	
Malt liquors.....	970,326	1,231,888	
Spirits.....	2,290,275	1,864,858	
Wines.....	7,559,255	6,940,026	
Total			\$724,639,574
			\$685,486,136

ARTICLES OF IMPORT.	1882.	1886.
Products of the United States returned.....	5,796,893	8,699,565
Breadstuffs and farinaceous substances.....	14,737,359	8,628,686
Precious stones.....	8,895,635	8,248,499
Live animals.....	6,840,845	6,940,026
Furs, and manufactures of.....	8,030,970	6,813,887
Glass and glassware.....	6,684,371	6,838,097
Fancy articles.....	10,212,101	5,988,373
Tin.....	4,958,585	5,878,752
Paper-stock.....	6,014,188	5,194,951
Earthen and china ware.....	7,128,668	4,947,621
Hats, bonnets, and materials for Buttons, and materials for.....	8,940,860	8,388,962
Fish.....	4,050,917	8,612,527
Books, maps, engravings.....	3,573,924	3,285,470
Seeds, not medicinal.....	2,346,392	3,266,208
Animal oils.....	264,276	92,290
Mineral oils.....	2,386	15,581
Vegetable oils.....	2,750,690	2,871,261
Spices.....	2,603,931	2,959,121
Vegetables.....	7,883,759	2,552,179
Coal, bituminous.....	2,189,298	2,351,954
Effects of persons arriving.....	2,432,805	2,482,280
Unmanufactured hair.....	1,101,689	2,214,501
Manufactures of hair.....	800,869	254,736
Metals, and manufactures of, not elsewhere specified.....	1,920,103	2,488,881
Eggs.....	1,808,585	2,178,454
Fertilizers.....	3,848,610	2,107,716
Provisions.....	2,183,995	2,088,445
Rice.....	2,026,255	2,047,916
Paper, and manufactures of.....	2,084,289	1,888,822
Cocoa, crude.....	1,470,312	1,793,398
Salt.....	1,673,515	1,499,182
Musical instruments.....	1,580,144	1,449,071
Clocks and watches.....	8,086,611	1,854,895
Art-works.....	8,086,522	1,342,699
Paints and colors.....	1,218,112	1,277,784
Bristles.....	1,032,555	1,087,187
Jewelry, and manufactures of gold and silver.....	712,781	1,081,101
Hay.....	892,688	1,035,588
Corsets.....	(a)	972,430
Cork-wood or cork-bark.....	1,124,216	891,892
Marble and stone, and manufactures of.....	930,071	872,086
Lead, and manufactures of.....	255,793	865,820
Cement.....	675,587	722,576
Ivory, animal and vegetable.....	997,045	673,221
Copper, and manufactures of.....	406,420	595,085
Brushes.....	851,648	554,126
Hops.....	302,112	444,989
Soap.....	321,688	437,296
Brass, and manufactures of.....	682,886	404,673
Sponges.....	840,448	887,884
Platinum.....	304,290	856,041
Bark, hemlock.....	490,588	259,479
Malt, barley.....	1,109,786	287,843
Bolting-cloths.....	259,584	282,769
Clay.....	265,516	225,823
All other articles.....	2,040,102	10,282,446
Total		\$724,639,574
		\$685,486,136

The ratio of manufactures to crude and partly manufactured articles has steadily declined. In 1860 manufactured articles formed 73·88 per cent. of the total imports; in 1870, 70·74 per cent.; in 1880, 62·44 per cent.; in 1882, 63·51 per cent.; in 1883, 64·27 per cent.; in 1884, 63·98 per cent.; in 1885, 59·90 per cent.; in 1886, 59·80 per cent.

The imports from all the industrial countries of Europe showed an increase in 1886 over those of the preceding year. The increase in value of the imports from Great Britain was \$17,552,274; from Germany, \$5,913,244; from France, \$6,482,078; from the Netherlands, \$2,871,097; from Italy, \$2,377,728; from all Europe, \$38,805,137. The imports from the Spanish West Indies were \$7,294,968 greater. The imports from Brazil were \$3,356,128 less.

in value, which was counterbalanced by an increase of nearly equal amount in the imports from other South American countries.

The following table shows the values of the merchandise imports from the principal foreign countries in 1882 and 1886, and the percentage of the total imports coming from each country in 1886 :

COUNTRIES.	1882.	1886.	Per cent.
Great Britain and Ireland	\$195,588,692	\$154,254,054	24·28
West Indies	91,803,522	71,053,146	11·18
Germany	56,368,549	69,154,997	10·88
France	88,597,606	63,417,430	9·98
Brazil	48,801,578	41,997,532	6·59
British North America	51,118,475	37,496,838	5·91
China	20,214,341	18,972,963	2·99
British East Indies	18,057,918	17,247,825	2·71
Italy	12,114,221	16,570,636	2·65
Japan	14,439,495	14,588,573	2·84
Switzerland	—	14,358,981	2·26
Mexico	5,461,899	10,687,972	1·68
Hawaiian Islands	7,646,294	9,805,707	1·54
Other Spanish possessions	9,970,155	9,566,912	1·51
Belgium	20,999,668	9,173,518	1·44
Netherlands	8,165,728	8,528,846	1·34
Austria	2,444,512	6,608,055	1·05
Spain	5,099,506	5,980,202	0·93
Central America	4,735,398	5,915,413	0·93
Venezuela	6,746,300	5,791,621	0·91
Argentine Republic	5,284,914	5,022,346	0·82
Uruguay	6,837,736	4,925,843	0·78
Australasia	8,689,424	8,859,360	0·61
Dutch East Indies	4,122,850	8,175,980	0·50

The imports from other countries amounted to the value of \$26,815,400 in 1886, forming 4·22 per cent. of the total imports. The imports from Great Britain decreased steadily from \$195,588,692 in 1882 to \$136,701,780 in 1885, and rose again in 1886 with the general improvement in the import trade. The imports from Germany have steadily increased from \$82,509,365 in 1877 to more than double that sum. They embrace a wide range of manufactured products, but the principal increase has been in cotton and woolen manufactures, fancy articles, glassware, silk goods, and manufactures of iron and steel. The exports to Germany have increased, but at a slow rate, and instead of a large excess of exports in the trade with Germany, which excess amounted to \$25,598,068 in 1877, there was a balance of trade of \$7,193,804 in favor of Germany in 1886. The trade with Italy shows the same rapid growth on the side of imports, and a shifting of the balance of trade, notwithstanding an increase of exports. The imports of French products are always large, and in prosperous years expand suddenly, but the export trade to France has fallen away to less than half of what it was six or eight years ago. In 1886 the imports landed on the wharves of New York constituted 65·99 per cent. of the total value of the imports of merchandise; those received at Boston 9·20 per cent., those landed at San Francisco 5·85 per cent., and at Philadelphia 5·76 per cent., while Baltimore imported 1·84 per cent. of the total value, Chicago 1·60 per cent., New Orleans 1·28 per cent., and all other ports 8·48 per cent.

Exports.—The decline in the value of domes-

tic exports, amounting to \$60,718,417, was in the exports of breadstuffs, provisions, refined sugar, cattle, and copper. The falling off of exports to Europe was about \$57,000,000. In the exports to Great Britain it was nearly \$50,000,000, and to France \$4,556,000. There was a decrease in the exports to South America of \$1,689,000. The exports to France, which amounted to \$98,889,209 in 1880, fell away to \$40,096,000 in 1886, owing chiefly to the exclusion of American pork, and also to a decrease in the lard and wheat exports to that country. The exports of cotton to Germany increased from 77,605,283 pounds, valued at \$9,061,899, in 1877, to 284,717,581 pounds, valued at \$28,494,555, in 1886; but the exports of petroleum to Germany fell off, owing to the competition of the Russian oil, from the value of \$17,262,964 in 1877 to \$7,752,121 in 1886.

The exports of agricultural products in 1886 amounted to \$484,954,595, constituting 72·82 per cent. of the total value of the domestic exports; the exports of manufactured products were \$106,419,692, 15·98 per cent. of the total; the exports of mining products, inclusive of mineral oils, were \$57,994,553, or 8·71 per cent. of the exports; the exports of forest products were \$6,743,727, equal to 1·01 per cent.; the exports of the products of the fisheries were \$5,138,806 in value, their percentage being 0·77; and all other exports amounted to \$4,713,156, or 0·71 per cent. of the whole.

The following table exhibits the value of the principal domestic exports in 1885-'86, as compared with the values in 1880-'81, the year of the largest exports:

ARTICLES OF EXPORT.	1881.	1886.
Raw cotton	\$241,693,746	\$205,085,642
Cotton manufactures	14,105,348	18,959,994
Breadstuffs	269,556,720	125,546,558
Provisions	156,809,840	90,625,216
Mineral oils	40,315,609	50,199,844
Vegetable oils	1,606,472	2,475,622
Animal oils	1,151,774	1,229,761
Tobacco, and manufactures of	20,378,884	30,424,908
Wood, and manufactures of	15,600,812	20,643,390
Iron and steel, and manufactures of	16,626,829	15,755,490
Animals	16,412,398	12,518,660
Sugar, refined, including candy	2,123,235	11,071,299
Sugar, brown, molasses, and syrup	552,069	1,120,467
Leather, and manufactures of	5,088,445	6,737,682
Oil-cake and oil-cake meal	6,284,364	7,058,714
Copper, and manufactures of	876,395	5,611,748
Chemicals, drugs, dyes, and medicines	4,414,235	5,818,468
Fish	4,592,367	4,203,901
Coal	2,881,460	4,188,580
Furs and fur-skins	5,451,419	8,821,102
Fruits	4,439,719	8,808,808
Spirits of turpentine	2,414,719	2,811,777
Spirits, distilled	3,247,981	2,745,514
Agricultural implements	2,400,318	2,367,253
Naval stores	2,638,804	2,032,298
Seeds	1,062,766	1,949,990
Paraffine and paraffine-wax	437,187	1,729,813
Hops	2,016,970	1,714,488
Flax, hemp, and jute, manufactures of	1,974,140	1,401,606
Clocks and watches, and parts of	1,247,463	1,866,160
Carriages and horse-cars, and parts of	1,013,644	1,840,198
Vegetables	1,510,834	1,317,487
Books, maps, engravings	690,359	1,314,639
Wool, and manufactures of	350,300	1,129,907
Fertilizers	612,941	1,107,657

ARTICLES OF EXPORT.	1881.	1886.
Paper, and manufactures of.....	1,409,976	1,106,616
Fancy articles.....	961,924	983,093
Grease and soap-stock.....	51,979	921,387
Hides and skins.....	903,484	878,925
Musical instruments.....	974,982	871,446
Soap.....	694,857	882,777
Glass and glassware.....	756,022	773,873
Casings for sausages.....	219,903	700,332
Malt liquors.....	847,785	667,363
India-rubber and gutta-percha, manufactures of.....	400,584	664,804
Gunpowder and other explosives.....	288,172	611,380
Marble and stone, and manufactures of.....	629,795	605,261
Cars, passenger and freight, for steam railroads.....	544,041	587,692
Lamps, chandeliers, etc.....	809,022	546,022
Instruments and apparatus for scientific purposes.....	175,621	479,586
Plated ware.....	810,577	436,965
Hair, and manufactures of.....	837,221	407,672
Stationery, except paper.....	.....	397,714
Jewelry.....	279,837	385,411
Whalebone.....	826,400	385,083
Paints and colors.....	383,020	385,536
Starch.....	629,710	288,056
Bark for tanning.....	120,426	288,056
Hay.....	283,529	287,902
Quicksilver.....	1,124,955	219,259
All other articles.....	6,526,676	4,298,822
Total.....	\$883,925,947	\$663,964,29

The quantities of the leading articles exported show a much smaller decrease since 1881

than the values. The quantity of raw cotton exported in 1886 was 2,058,037,444 pounds, being 6·1 per cent less than in 1881, while a comparison of the values shows a decline of 17·3 per cent. The export of Indian corn was 63,655,433 bushels, 30·7 per cent. less in quantity, and 37·4 per cent. in value; that of corn-meal, 293,546 barrels, 32·5 per cent. less in quantity, and 38·3 per cent. in value; that of rye, 196,725 bushels, 89·8 per cent. less in quantity, and 92·9 per cent. in value; that of wheat, 57,759,209 bushels, 61·7 per cent. less in quantity, and 70·2 per cent. in value; that of wheat-flour, 8,179,241 barrels, 2·9 per cent. more in quantity, but 14·6 per cent. less in value. The export of live cattle was 119,065 head, 35·8 per cent. fewer than in 1881, and 23·4 per cent. less in value. The export of fresh beef, 99,423,362 pounds, showed a decline of 6·2 per cent. in quantity, and 5·7 per cent. in value; salted and cured beef, 59,728,325 pounds, an increase in quantity of 2·5 per cent., and in value of 36·3 per cent.

The following table exhibits the average export prices of corn and wheat per bushel, flour per barrel, mineral oil per gallon, and other leading articles per pound in 1886 and the five preceding years, and in 1876, 1866, and 1856:

ARTICLES.	1886.	1885.	1884.	1883.	1882.	1881.	1876.	1866.	1856.
Corn.....	\$0 49·8	\$0 54·0	\$0 61·1	\$0 68·4	\$0 66·8	\$0 55·2	\$0 67·2	\$0 81·9	\$0 74·1
Wheat.....	0 87·0	0 86·2	0 106·6	1 12·7	1 18·5	1 11·4	1 24·2	1 40·6	1 85·3
Flour.....	4 69·9	4 89·7	5 58·3	5 95·5	6 14·9	5 66·8	6 21·6	8 42·7	8 84·0
Cotton.....	0 10·0	0 10·7	0 10·6	0 10·9	0 11·5	1 11·8	0 12·9	0 43·2	0 95·0
Leather.....	0 19·9	0 19·8	0 26·0	0 21·1	0 29·	0 22·6	0 26·2	0 29·5	0 25·9
Kerosene.....	0 08·7	0 08·7	0 09·2	0 08·8	0 09·1	0 10·3	0 14·0	0 54·2	.....
Bacon and hams.....	0 07·5	0 09·2	0 10·2	0 11·2	0 19·0	0 08·2	0 12·1	0 16·6	0 09·2
Lard.....	0 06·6	0 07·9	0 09·5	0 11·9	0 11·6	0 09·8	0 18·3	0 19·8	0 10·8
Pork, salted.....	0 05·9	0 07·2	0 07·9	0 09·9	0 09·0	0 07·7	0 10·6	0 15·9	0 08·9
Beef, salted.....	0 06·0	0 07·6	0 07·6	0 05·9	0 05·5	0 06·5	0 08·7	0 14·5	0 07·6
Butter.....	0 15·6	0 16·8	0 18·2	0 18·6	0 19·3	0 19·8	0 23·9	0 88·3	0 19·7
Cheese.....	0 08·3	0 09·3	0 10·3	0 11·2	0 11·0	0 11·1	0 12·6	0 16·0	0 10·2
Eggs.....	0 18·3	0 21·5	0 21·2	0 20·9	0 19·2	0 17·2	0 28·0	0 81·1	.....
Starch.....	0 04·1	0 04·0	0 04·5	0 04·6	0 04·8	0 04·7	0 05·4	0 09·6	.....
Sugar, refined.....	0 06·7	0 06·4	0 07·1	0 09·2	0 09·7	0 09·2	0 10·7	0 16·3	0 08·8
Tobacco.....	0 07·0	0 09·9	0 09·1	0 08·6	0 08·5	0 08·3	0 10·4	0 15·4	.....

The values of the principal classes of exports, constituting over 90 per cent. of the total exports for the last three years, are given in the following table:

ARTICLES.	1886.	1885.	1884.
Animals.....	\$12,518,660	\$14,567,081	\$20,298,529
Breadstuffs.....	125,846,558	160,370,821	162,514,715
Coal.....	4,188,590	4,573,962	5,031,509
Copper.....	5,671,748	10,187,024	5,595,859
Cotton, and manufactures of.....	219,045,576	218,799,049	208,900,415
Furs and fur-skins.....	3,821,102	4,153,287	8,998,182
Iron and steel.....	15,755,490	16,605,046	21,921,962
Leather.....	8,737,682	9,692,403	8,805,779
Oil-cake and oil-cake meal.....	7,058,714	6,674,466	7,115,158
Oil, mineral.....	50,199,544	50,257,947	47,108,243
Provisions :			
Meat products.....	79,748,750	98,028,117	98,736,296
Dairy products.....	10,876,466	14,809,339	15,617,492
Sugar.....	10,977,759	16,050,806	5,417,158
Tobacco.....	80,424,908	24,767,305	20,296,217
Wood, and manufactures of.....	20,748,390	21,464,822	24,275,123
Total.....	\$605,010,177	\$660,527,980	\$655,152,372

In the export of spirits there was a falling off in 1886 of \$2,819,702; in hides and skins, of

\$948,133; and in clover-seed, \$1,260,401, while other seed showed an increase of \$1,043,717. Of the decrease in the exports of meat products, \$7,757,702 was in pork products, \$3,923,853 in beef products, and \$1,592,812 in other meat products.

The following table exhibits the values of the exports of domestic merchandise, divided into products of agriculture, products of manufacture, and products of mining, forestry, fisheries, etc., for the last ten years, and for the years 1860 and 1870:

YEAR.	Products of agriculture.	Products of manufacture.	Products of forestry, etc.	Total.
1860.	\$256,560,972	\$45,658,873	\$14,022,588	\$316,242,428
1870.	861,188,488	47,921,154	46,098,704	455,208,841
1877.	459,734,148	88,007,773	58,238,938	632,980,584
1878.	536,192,578	91,416,576	68,140,481	695,749,980
1879.	546,476,708	89,117,215	63,944,824	699,588,742
1880.	685,961,091	79,510,447	58,474,815	828,946,358
1881.	780,394,948	89,219,350	64,211,624	883,925,947
1882.	552,219,819	108,182,481	77,887,432	738,229,732
1883.	619,269,449	111,890,001	73,064,182	904,228,632
1884.	536,815,518	113,830,242	77,319,298	724,964,852
1885.	530,172,666	117,259,310	79,250,170	726,682,946
1886.	484,954,595	106,419,692	74,590,242	665,964,529

The values of the principal articles of agricultural production, constituting in 1886 about 95 per cent. of the total value of the exports of all products of agriculture, are given for the same years in the following table:

YEARS.	Cotton, raw.	Breadstuffs.	Leaf-tobacco.	Provisions, comprising meats and dairy products.	Cattle, sheep, and hogs.	Total.
1860.....	\$191,806,555	\$24,422,810	\$15,906,547	\$16,934,368	\$1,463,643	\$250,533,418
1870.....	227,027,624	72,250,988	21,100,420	30,992,305	724,933	832,096,215
1877.....	171,118,508	117,806,476	28,525,521	118,579,676	2,526,740	438,856,921
1878.....	180,091,484	181,777,841	24,803,165	124,845,187	4,497,576	515,955,203
1879.....	162,804,250	210,355,528	25,157,364	119,857,692	10,162,400	527,887,284
1880.....	211,595,905	288,096,888	16,379,107	132,488,201	14,657,931	663,297,979
1881.....	247,695,746	270,892,519	18,737,043	156,809,840	15,639,178	709,514,321
1882.....	199,812,644	182,670,528	19,067,721	122,020,530	8,913,656	532,485,079
1883.....	247,388,721	205,040,850	19,498,066	109,217,119	9,765,803	599,798,559
1884.....	197,015,204	162,544,715	17,763,760	114,358,788	19,353,121	511,012,588
1885.....	201,962,458	160,370,821	22,025,786	107,382,456	18,995,441	505,659,962
1886.....	205,085,642	125,846,558	27,158,457	90,625,216	11,963,095	460,678,968

The values of domestic merchandise exported to the principal foreign countries in 1886, compared with the exports to the same countries in 1881, with the percentage of each country in the total exports for 1886, are shown in the following table:

COUNTRIES.	1881.	1886.	Per cent. for 1886.
Great Britain and Ireland	\$477,450,619	\$844,927,973	51·79
Germany.....	68,858,571	60,923,557	9·15
France.....	89,844,100	40,006,096	6·01
British North American provinces.....	85,793,031	81,058,124	4·80
West Indies.....	29,148,138	25,876,583	3·81
Belgium.....	85,683,574	22,613,399	3·40
Netherlands.....	25,785,004	14,536,664	2·18
Italy.....	8,987,417	18,045,546	1·96
Spain.....	12,593,288	13,047,762	1·96
British possessions in Australasia.....	6,636,180	10,981,915	1·65
Russia in Europe.....	15,818,823	9,705,395	1·47
China.....	5,447,281	7,518,277	1·18
Mexico.....	9,198,077	6,556,077	1·03
Brazil.....	9,183,637	6,480,188	.97
United States of Columbia.....	5,179,866	5,294,798	.79
British East Indies.....	858,069	4,850,141	.65
Argentine Republic.....	2,258,183	4,831,170	.65
Portugal.....	4,291,088	4,306,205	.65
Hong-Kong.....	2,914,668	4,044,384	.61

The exports to other countries besides those enumerated amounted to \$35,562,500, or 5·34 per cent. of the total exports. The exports to European countries amounted to \$533,614,395, constituting 80·18 per cent. of the total value of the exports; to Asia and Oceania, \$36,178,091, being 5·43 per cent. of the whole; to British North America, \$31,953,124, or 4·80 per cent. of the exports; to the West Indies, \$25,376,353, or 3·81 per cent.; to South America, \$25,277,323, or 3·79 per cent.; to Mexico, Central America, and British Honduras, \$9,662,776, or 1·45 per cent.; to Africa, \$2,777,382, or 0·42 per cent.; to all other countries, \$1,125,085, or 0·17 per cent. The exports to Italy, Spain, the Spanish West Indies, and China, showed an increase of over \$1,000,000 each, as compared with 1885, and those to Australasia and the Hawaiian Islands of over \$400,000 each. Those to Belgium and the Netherlands were less by more than \$2,000,000. The export trade with China averaged \$2,264,000 in 1877-'80. The exports to South American countries increased from \$22,169,891

in 1877 to \$31,226,934 in 1884, and have since declined to \$26,131,991. The exports to Australasia, India, Japan, and other countries in Asia, and Oceania show a progressive increase.

The exports from the port of New York constituted 46·26 per cent. of the total value of exports during the year ending June 30, 1886; 12·15 per cent. of the exports were shipped from New Orleans; from Boston, 7·96 per cent.; from Baltimore, 5·27 per cent.; from Philadelphia, 4·97 per cent.; from San Francisco, 4·45 per cent.; from Savannah, 2·99 per cent.; from Charleston, 2·60 per cent.; from Galveston, 2·50 per cent.; from Norfolk, 1·71 per cent.; from Huron, 1·22 per cent.; from all other ports, 7·92 per cent.

The Export Trade in Wheat.—The average production of wheat in Europe for the eight years preceding 1881 was 1,144,000,000 bushels, and the average consumption in both food and seed 1,312,000,000 bushels, requiring a supply from other countries of 168,000,000 bushels per annum. The consumption of wheat in European countries ranges from 9 bushels per capita in France to 1 bushel in Norway, but averages about $3\frac{1}{2}$ bushels for food and $\frac{1}{2}$ bushel for seed. The yield in Western Europe during a portion of that period was abnormally low, stimulating the exports from the United States, and causing an increase of millions of acres in the wheat area. The production in Russia, India, South Australia, and other countries, was increased from the same cause. In the succeeding five years the European production averaged 50,000,000 bushels more than the yield for the period mentioned, being 1,159,826,380 bushels in 1881, 1,287,352,264 bushels in 1882, 1,152,925,514 bushels in 1883, 1,270,383,227 bushels in 1884, and 1,217,809,309 bushels in 1885. During the ten years preceding 1881, when deficient harvests in Europe caused a great increase in American exports, the production of the United States was 366,000,000 bushels. The average production for the last five years has been 436,000,000 bushels. The increase of 120,000,000 bushels in the production of Europe and the United States was no greater than was required for the increment in the population but in India, Al-

geria, and other countries, the production was stimulated in like manner, and from these countries about 42,000,000 bushels per annum have been forced upon the European market. For this reason the American exports, which averaged 174,000,000 bushels in 1878-'80, declined to 116,000,000 bushels per annum for the period 1881-'85. The average export price of a bushel of wheat declined from \$1.11 to 87-2 cents in 1886. The lowest point was reached in 1885, when the average price was 86-2 cents. The world's product of wheat in 1885-'86 was estimated by the Department of Agriculture at Washington at 2,110,000,000 bushels, of which 1,218,000,000 bushels were produced in Europe, 409,000,000 in North America, 25,000,000 in South America, 287,000,000 in India, 37,000,000 in Australasia, and 134,000,000 in Africa and Western Asia. The average annual product of the world between 1870 and 1880 was about 2,000,000,000 bushels. The exports of the countries producing a surplus in 1880 were 208,987,072 bushels, 69-13 per cent. of which represent the exports of the United States. In 1884 the same countries exported 202,352,523 bushels, only 40-34 per cent. of which came from the United States. In 1883 the share of the United States in the exports of the wheat-producing countries was still less, being 34-86 per cent. In 1882 it was 49-78 per cent., and in

1881 55-70 per cent. The exports from Russia in Europe were 36,565,653 bushels in 1880, 48,972,597 in 1881, 76,373,532 in 1882, 83,777,096 in 1883, and 67,719,720 in 1884. The exports from British India were 13,896,168 bushels in 1880, 37,078,571 in 1881, 26,402,893 in 1882, 39,118,791 in 1883, 29,550,741 in 1884, and 39,312,969 in 1885. The exports from South Australia, Victoria, and New Zealand, were 13,999,415 bushels in 1880, 9,729,596 in 1881, 8,506,904 in 1882, 7,481,949 in 1883, and 19,466,921 in 1884. The exports from the Argentine Republic, which were only 42,829 bushels in 1880, 5,772 in 1881, and 62,659 in 1882, rose to 2,292,352 in 1883, 3,986,663 in 1884, and 2,884,138 in 1885. The exports from the United States were 144,483,007 bushels in 1880, 120,451,888 in 1881, 110,343,185 in 1882, 79,065,180 in 1883, 74,962,078 in 1884, and 46,678,257 in 1885. The total exports from these countries, representing very nearly the European demand, showed but little variation, being 208,987,072 bushels in 1880, 216,238,424 in 1881, 221,689,173 in 1882, 203,683,468 in 1883, and 202,352,523 in 1884.

Exports of Provisions.—The following table exhibits the values of the exports of the various classes of provisions for each year since 1880, and at intervals of five years before that year, showing the growth of this branch of foreign commerce since 1860:

YEARS.	Bacon and hams.	Pork.	Lard.	Total hog-products.	Beef-products.	All other meat-products.	Dairy products.	Total value.
1860.....	\$2,273,768	\$3,122,813	\$4,545,831	\$9,951,912	\$4,272,500	\$2,709,951	\$16,984,368	
1865.....	10,596,608	6,850,508	9,134,858	26,522,274	8,324,685	\$142,688	19,026,199	54,015,841
1870.....	6,128,113	8,253,127	5,933,397	15,300,647	5,743,639	813,757	9,614,262	80,992,305
1875.....	28,612,613	5,671,495	22,900,522	57,184,690	9,890,159	735,112	15,290,164	88,100,655
1880.....	50,957,623	5,930,252	27,920,367	84,885,422	18,012,197	16,637,957	18,988,420	132,488,201
1881.....	61,161,205	8,272,285	35,626,375	104,660,063	19,326,673	10,061,379	22,175,742	156,809,840
1882.....	46,675,774	7,201,276	28,975,902	82,532,946	14,687,235	7,856,814	17,124,085	122,020,530
1883.....	38,155,952	6,192,226	26,615,048	70,966,263	15,383,262	9,811,993	18,605,696	109,217,119
1884.....	39,684,845	4,762,715	25,305,958	69,758,519	28,224,506	5,758,277	15,617,492	114,858,788
1885.....	37,083,948	5,203,948	22,595,219	64,888,110	22,421,788	5,710,219	14,899,389	107,382,456
1886.....	31,640,211	5,123,411	20,361,786	57,125,405	18,505,985	4,117,407	10,876,466	90,625,216

The exports of live cattle declined from 185-707 head in 1881 to 119,065 in 1886, a decrease in quantity of 35-8 per cent., while the decrease in value was 23-4 per cent. Beef-products show a decrease of 17-7 per cent. in quantity and 21-5 per cent. in value. The decline in pork-products has been 35-1 per cent. in quantity and 45-4 per cent. in value. The exports of butter and cheese have likewise declined. The exports of bacon and hams to Germany, which were never so large as has been commonly believed, reached their highest point in 1873, when they amounted to 65,708,546 pounds. For the ten years from 1871 to 1880 their average annual value was only \$2,291,967. The imports of American lard have not been prohibited in Germany, and are still large. They were greatest in 1879, when the returns of lard exported to Germany reached a total amount of nearly 90,000,000 pounds. In 1886 the lard exports to Germany were over 62,000,000 pounds, of the value of \$4,126,311. The export trade in bacon, hams, and pork

was more seriously affected by the restrictions placed by the French Government on the importation of American pork-products than by the German regulations.

Exports of Live Animals.—The exports of cattle were only \$159,000 in value in 1865, \$439,987 in 1870, and \$1,593,080 in 1877. They more than doubled in each of the two succeeding years, and rose to \$14,304,108 in 1881, fell off to \$7,800,227 the year following, showed a slight increase in 1883, and then doubled in 1884, reaching their highest point, but then declined from \$17,855,495 in that year to \$12,906,690 in 1885 and \$10,958,954 in 1886. The value of the exports of sheep declined from \$1,154,856 in 1883, when they were greatest, to \$329,844 in 1886. The exports of live hogs suddenly rose to \$1,625,837 in value in 1874, and since that year have averaged \$544,000. In 1886 they were \$674,297.

Imports entered for Consumption.—The total value of merchandise withdrawn from warehouse and that entered for immediate consump-

tion during the year ending June 30, 1886, was \$625,778,055, against \$579,580,054 in 1884-'85, and \$667,575,889 in 1883-'84. The value of dutiable merchandise entered for consumption was \$413,778,055 in 1885-'86, \$386,667,820 in 1884-'85, and \$456,295,124 in 1883-'84. The amounts of duty collected in 1886 was \$188,533,171, the average ad valorem rate being 45·80 per cent.; in 1885, \$177,414,454, or at the rate of 46·074 per cent.; in 1884, \$189,943,297, representing the average rate of 41·702 per cent. The value of manufactured goods entered for consumption in 1886 was \$377,012,646, and that of unmanufactured goods \$249,296,168. Of the total amount of duties collected 27·337 per cent. was paid on sugar, 2·759 per cent. on raw wool, 14·401 per cent. on woolen manufactures, 7·725 per cent. on iron and steel and manufactures thereof, 3·910 per cent. on manufactures of flax, hemp, jute, and other vegetable fibers, 7·358 per cent. on manufactures of silk, 6·205 per cent. on cotton manufactures, 4·388 per cent. on tobacco, 3·798 per cent. on wines and distilled and malt liquors, 2·295 per cent. on chemicals, drugs, dyes, and medicines, and 19·824 per cent. on all other articles. Articles of food paid 32·42 per cent. of the total duties collected, raw materials 6·83 per cent., partly manufactured goods 10·68 per cent., manufactured articles 29·45 per cent., and articles of luxury 20·53 per cent.

The value of merchandise received for in-transit or transshipment in 1886 was \$37,038,264. Goods of the value of \$10,861,020 were received from British North American provinces, and of that of \$26,177,244 from other countries. The value of transit goods shipped to British North America was \$20,241,079, and of those sent to other countries \$16,797,185.

Carrying-Trade.—The proportion of the foreign commerce of the United States carried in American vessels was 15·07 per cent. in 1885-'86, while 79·38 per cent. was carried under foreign flags, and 5·55 per cent. in land-vehicles. The proportion carried in American steam-vessels was 6·95 per cent.; in foreign

steam-vessels, 65·25 per cent.; in American sailing-vessels, 8·12 per cent.; in foreign sailing-vessels, 14·13 per cent. The value of imports carried in American steam-vessels in 1886 was \$54,011,911; of domestic exports, \$31,751,729; of foreign exports, \$1,127,827; total exports, \$32,879,556; transshipment and in-transit trade, \$9,711,701; total foreign commerce, \$96,603,168. The value of imports carried in American sailing-vessels was \$64,930,906; of domestic exports, \$44,663,036; of foreign exports, \$864,094; total exports, \$45,527,180; in-transit and transshipment trade, \$2,244,740; total foreign commerce, \$112,702,776. The total value of imports carried in American vessels was \$118,942,817; of domestic exports, \$76,414,765; of foreign exports, \$1,991,921; total exports, \$78,406,686; in-transit and transshipment trade, \$11,956,441; total foreign commerce, \$209,305,944. The value of imports carried in foreign steam-vessels was \$428,403,781; of domestic exports, \$442,536,993; of foreign exports, \$7,882,626; total exports, \$450,419,619; in-transit and transshipment trade, \$27,576,087; total foreign commerce, \$906,399,487. The value of imports carried in foreign sailing-vessels was \$63,533,855; of domestic exports, \$130,587,410; of foreign exports, \$966,448; total exports, \$131,553,858; in-transit and transshipment trade, \$1,122,803; total foreign commerce, \$196,210,516. The total value of imports carried in foreign vessels was \$491,937,636; of domestic exports, \$573,124,403; of foreign exports, 8,849,074; total exports, \$581,973,477; in-transit and transshipment trade, \$28,698,890; total foreign commerce, \$1,102,610,003.

The value of imports carried in cars and other land-vehicles was \$24,555,683; of domestic exports, \$16,425,361; of foreign exports, \$2,719,306; total exports, \$19,144,667; in-transit and transshipment trade, \$33,421,197; total foreign commerce, \$77,121,547.

The tonnage entered at ports of the United States in its foreign trade during the year ending June 30, 1886, as compared with 1885, was as follows:

VESSELS.	1886.		1885.		Increase +; Decrease -.	
	Number.	Tons.	Number.	Tons.	Tons.	Per cent.
ENTERED AT SEA-PORTS :						
American :						
Sail.....	8,570	1,467,224	8,632	1,420,267	+ 46,957	+ 3·3
Steam.....	1,744	1,294,571	2,005	1,288,945	+ 6,626	+ .4
Total	5,314	2,761,795	5,637	2,709,212	+ 52,588	+ 1·9
Foreign :						
Sail.....	8,101	3,585,655	7,964	3,612,446	- 27,791	- .8
Steam.....	8,691	5,882,849	8,624	5,964,834	- 82,455	- 1·4
Total	11,792	9,468,004	11,588	9,573,280	- 110,276	- 1·2
Total entered at sea-ports	17,106	12,229,799	17,275	12,287,492	- 57,693	- .5
ENTERED AT LAKE-PORTS :						
American	4,048	469,778	8,634	422,799	+ 46,979	+ 11·1
Foreign	9,302	2,486,089	9,295	2,594,536	- 148,497	- 5·7
Total entered at lake-ports	13,350	2,955,867	12,929	3,017,335	- 101,518	- 3·4

The tonnage entered at ports of the United States in the foreign trade during the fiscal year 1886 was as follows:

PORTS.	American.	Foreign.	Total.	Per cent.
New York.....	947,256	4,611,682	5,558,938	36·73
Boston.....	261,932	922,176	1,184,108	7·82
San Francisco.....	423,730	350,960	774,690	5·12
Philadelphia.....	217,549	937,517	1,155,066	7·63
Baltimore.....	45,799	475,671	521,470	3·45
New Orleans.....	56,977	646,643	703,620	4·65
Lake-ports.....	469,778	2,496,039	2,965,817	19·19
All other ports.....	805,552	1,523,355	2,331,907	15·41
Total.....	3,231,573	11,904,048	15,185,616	100·00

CONGO FREE STATE, a neutral state in Central Africa, constituted under international guarantee by the general act of the Congo Conference, signed at Berlin on Feb. 26, 1885. Conventions recognizing the sovereign rights of the International Association of the Congo, merged at the Berlin Conference into the Free State, were concluded with Germany, on Nov. 8, 1884; with Great Britain, on Dec. 16, 1884; with the Netherlands, on Dec. 27, 1884; with France, on Feb. 5, 1885; and with Portugal, on Feb. 14, 1885. The powers, at the International Conference, undertook to respect the neutrality and inviolability of the Free State, and declared its territories and the rest of the basin of the Congo to be free to the trade of all nations. They reserved the right to decide, until the end of a period of twenty years, whether they would agree to the continuance of freedom of entry. The navigation of the Congo was placed under the direction of an International Commission, representing all the powers signing the act. The sovereign of the Free State is King Leopold of Belgium, who was authorized to accept that quality and title by vote of the Belgian Parliament on April 28 and 30, 1885. Belgium and its Government have no power or responsibility in relation to the Congo State. The central government has its seat at Brussels, and consists of the King of the Belgians and the heads of the three departments of Foreign Affairs and Justice, Finance, and the Interior. The state maintains an armed force of about 2,000 men. The Administrator-General of the local government at Boma is C. Janssen. The Administrator-General of Foreign Affairs and Justice in Brussels is E. van Eetvelde; of Finance, H. van Neuss; of the Interior, Gen. M. Strauch. There are four administrative divisions, under provincial chiefs. These are the Lower Congo, Livingstone Falls and the Pool, the district between the Pool and the equator, and the Upper Congo.

The area of the Free-State territory is estimated at 1,056,200 square miles, with a population of 27,000,000 souls. The state embraces a strip on the north bank of the Congo from the mouth of the river to Manyanga, where French territory begins. Beyond the mouth of the Likona the bank of the Congo belongs to the new state, whose boundary extends thence northward to 4° north latitude, eastward to 30° east longitude, then southward to

Lake Bangweolo, in 12° south latitude, westward from there to 24° east longitude, northward again to 6° south, and then westward to the south bank of the Congo at Nokki. The principal articles of export are palm-oil, rubber, ivory, gum-copal, ground-nuts, orchilla-weed, and cam-wood. The import articles are textile fabrics, fire-arms, powder, spirits, and tobacco. The capital of the Congo State is Leopoldville, on Stanley Pool.

Finances.—The Government, in January, 1886, decided to issue a lottery loan of 100,000,000 francs, in lots of 20 francs, not bearing interest, to be repaid in annual drawings extending over a period of twenty years. The state has a revenue of \$250,000 a year, guaranteed by the King of the Belgians. In February, 1886, the following export duties were established by the Government of the Free State: Earth-nuts, 1·30 franc per 100 kilos; coffee, 1 franc; caoutchouc, 20 francs; gum-copal, 8 francs; palm-oil, 2·50 francs; ivory, 50 francs; palm-nuts, 1·20 franc; sesame, 1·70 franc.

Ratification of the General Act.—The representatives of the powers that signed the general act of the Congo met at Berlin on April 19, to draw up a protocol with reference to the delivery of ratifications. All the signatories ratified the treaty with the exception of the United States, which sent delegates to the Conference on the understanding that their part should be merely deliberative, and should not bind the Government to any action on another continent, as the United States Government is not disposed to share in the disposal of jurisdictional questions in remote foreign territories, or in the obligation to enforce neutrality in the valley of the Congo. The President therefore, abstained from asking the sanction of the Senate to the general act, though Mr. Kasson, who, as minister to Berlin, was a delegate to the Conference, held that the United States, in becoming a party to the instrument, would assume no obligation, except to respect the neutrality of the Congo region.

Railroad Projects.—The founders of the Congo State were aware that a railroad from the head of navigation on the lower Congo to Stanley Pool, above the cataracts, was necessary for the development and success of their political enterprise, and the achievement of the humanitarian and commercial objects for which it was begun. The distance is 235 miles. Beyond there are 7,000 miles of navigable waters already explored, leading to rich and populous districts, yielding many valuable articles of commerce. From Leopoldville, which is 800 miles from the sea, the Congo is navigable for 900 miles up to Stanley Falls.

The Congo State found an English syndicate that was willing to build the railroad; but, after nine months had been spent in negotiations, the authorities in Brussels refused to agree to terms demanded, and the syndicate was dissolved on Sept. 24. The English capitalists demanded that they should have the sole

right to build railroads for fifty years, that privileges in navigation and other matters should be granted to them, and that their property and employés should be under British law and jurisdiction, and not subject to the enactments of the Free State. The Congo Government replied that its international obligations would not allow it to make concessions of that nature. It was decided, after the breakdown of the arrangements with English capitalists, to organize a Belgian syndicate, which should carry out the necessary detailed surveys, and form a permanent company, working in harmony with the Free State Government. A Belgian company was accordingly organized in October for the construction of railroads and other means of inland communication, the institution of navigation services, the construction of ports, docks, and warehouses, and mercantile, industrial, and agricultural operations. The capital was fixed preliminarily at 1,000,000 francs. Among the subscribers were the principal banking, industrial, and trading establishments of Belgium. The senator Montefiore-Levy was elected president. The company undertakes to make a complete survey for the construction of the railroad, and submit to the Congo State detailed plans within eighteen months. The railroad is to be constructed entirely within the territory of the state, that is, along the south bank, starting from some point above Nokki, where Portuguese territory ends. In return for the survey the company receives 150,000 hectares of land, and has the option of constructing the railroad on conditions laid down by the Congo Government. At the end of ninety-nine years the railroad and everything appertaining to it will become the absolute property of the Congo Government. If the company constructs the line, it will receive 1,500 hectares of land for every kilometre built, and will have the right to select the lands, but with only a limited river frontage. The Government, moreover, agrees to grant a subsidy each year of 20 per cent. of the export duties, or such portion of 20 per cent. as will make up the difference between the net receipts of the company and 5 per cent. interest on the capital expended. Of the profits of the enterprise, including the 20 per cent. of the gross produce of the export duties, 5 per cent. will go to the legal reserve, and 6 per cent. to the payment of interest, while of the remainder the Government will receive 40 per cent. and the company 60 per cent.

Ecclesiastical Jurisdiction.—In accordance with the wishes of King Leopold, the Pope, in recognizing the Congo State as under the suzerainty of Belgium, decreed that the Primate of Belgium, the Archbishop of Mechlin, should exercise spiritual jurisdiction over the clergy of the new state. Missionary priests for the Congo are educated in the new African Seminary, connected with the University of Louvain. The claim of the Portuguese prelates on the Congo for ecclesiastical dominion in the

Congo region, though supported by the Portuguese Government, was denied by the Pontiff.

The French Boundary.—A joint commission was to trace the frontier between the Congo State and the French Territory of the Congo in the spring, but owing to a difference of views the commissioners of the Free State did not go to the spot. Both governments in July agreed to submit their differences to the arbitration of the President of the Swiss Republic.

Abandonment of Stanley Falls.—The station at Stanley Falls was evacuated in October in consequence of a quarrel between the Arabs and the agent, an Englishman named Deane, who protected a female slave that had escaped from her master.

CONGREGATIONALISTS. Statistics of Congregationalists in the United States.—The following is a summary of the statistics of the Congregational churches in the United States, as given in the "Year-Book" of the Congregational churches for 1887: Whole number of churches, 4,277, of which 197 were added during the year; number of ministers, 4,090; number of members, 436,341; added on profession during the year, 27,159; number of infant baptisms, 7,348; number of members in Sunday-schools, 521,488; amount of benevolent contributions, so far as they were reported, \$1,677,096; amount of contributions for home expenditures, \$3,909,225.

The whole number of Congregational churches in all lands is estimated to be 11,784, with 10,893 ministers and 1,204,099 members.

American Home Missionary Society.—The sixtieth anniversary of the American Home Missionary Society was held in Saratoga Springs, N. Y., June 1. The Rev. Dr. Julius H. Seelye, of Massachusetts, presided. The receipts of the society for the year had been \$524,545, which, added to the balance in the treasury at the beginning of the year, made its entire available resources \$525,955. The expenditures had been \$498,790, while the society's outstanding pledges still amounted to \$44,951. The whole number of ministers in service was 1,469, and they had supplied fully, or by preaching at stated intervals, 3,005 congregations and missionary districts. Five had preached to congregations of colored people, and 96 in foreign languages. Two thousand and ninety-seven Sunday-schools, comprising 120,000 pupils, were under the special care of the missionaries, and 296 new schools had been organized. The additions to the churches by confession of faith numbered 5,642. One hundred and fifty-two churches had been organized, and 66 churches had become self-supporting.

American Congregational Union.—The thirty-third annual meeting of the American Congregational Union was held in New York city, May 13. The Rev. Samuel Scoville, of Stamford, Conn., presided. The receipts to the treasury for the year had been \$85,183, and were derived from 1,522 churches, a larger number than had ever before contributed to the work of the society. Aid to the amount

of \$50,045 had been voted to 97 churches for building houses of worship, \$15,000 of the sum being in the form of loans to 20 of the churches, and loans to the amount of \$14,250 had been voted to 44 churches to aid in the erection of parsonages. Loans to the amount of \$71,188 had been paid to 133 churches for both of these purposes. The Union had now 74 parsonages which it had aided in constructing, completed, paid for, and occupied. Twenty-four more parsonage enterprises had been voted aid, and three more regular applications for aid were on hand.

American Board.—The seventy-sixth annual meeting of the American Board of Commissioners for Foreign Missions was held at Des Moines, Iowa, October 5. The Rev. Mark Hopkins, D. D., presided. Great interest was attached to the consideration of the case of the Rev. Robert A. Hume, who, after having labored for eleven years as a missionary in India, had been refused by the Prudential Committee permission to return as a missionary because of his adhesion to the "Andover doctrine" of a future state of probation for the dead. The discussion involved a principle of general application regarding the extent to which views deviating from the usually accepted orthodox doctrines would be tolerated in the missionaries of the board. The Prudential Committee presented in its report a general review of its action in the case, not so much in regard to the details as with reference to the principles which govern its course. It regarded itself obligated to obtain satisfactory assurance from candidates as to their position on the leading doctrines of the Scriptures, and as to doubts, if they have any, "respecting any of the doctrines commonly held by the churches sustaining the missions under the care of the board." If a candidate express doubts respecting any of those doctrines, such expression of doubt "leads to further correspondence or conference, in order to ascertain how much or how little is practically meant by the doubt, and also to give opportunity, if possible, to relieve the doubt and establish the inquirer in the truth." When for any reason the committee is not satisfied of the doctrinal soundness of the candidate or of his fitness in other respects for the field of labor for which his appointment is contemplated, it has been its custom to vote that "it is inexpedient to make the appointment at present" or "to defer action." This general method, which was in harmony with a declaration made by the board thirty-seven years previously, that "the board does not assume to decide upon the fitness of an individual to be a minister of the gospel; but it is their duty to decide, and that intelligently, on his original and continued fitness to be sustained by the funds committed to their disposal as a missionary to the heathen" had been "faithfully followed during the past year, this service being regarded by the executive officers and the Prudential Committee as one

of their most serious, sometimes most delicate and difficult, duties." A protest against the action of the committee was sent up by the United Congregational Church of New Haven, Conn., of which Mr. Hume was a member. After a prolonged discussion of the questions involved in the case, resolutions were adopted declaring that "the board recognizes and approves the principle upon which the Prudential Committee has continued to act in regard to appointments for missionary service in strictly conforming to the well-understood and permanent basis of doctrinal faith upon which the missions of the board have been steadily conducted, and to which in the exercise of its sacred trust the committee had no option but to conform."

"The board is constrained to look with great apprehension upon certain tendencies of the doctrine of a probation after death, which has been recently broached and diligently propagated, that seemed divisive and perverse and dangerous to the churches at home and abroad.

"In view of those tendencies they do heartily approve of the action of the Prudential Committee in carefully guarding the board from any committal to the approval of that doctrine, and advise a continuance of that caution in time to come.

"The board recommends to the Prudential Committee to consider, in difficult cases turning upon doctrinal views of candidates for missionary service, the expediency of calling a council of the churches, to be constituted in some manner which may be determined by the good judgment of the committee, to pass upon the theological soundness of the candidate, and the committee is instructed to report on this matter at the next annual meeting."

The receipts of the board from all sources had been \$500,683, of which \$235,985 had come from churches, individuals, and Sunday-schools, \$148,262 from women's boards, \$107,191 from legacies, and \$9,244 from the income of the permanent fund and other sources. The expenditures for the year had been \$658,285. The missions are in Mexico, Spain, Austria, Turkey (European and Asiatic), India, Ceylon, China, Japan, the Sandwich Islands and Micronesia, and Africa (Zulu, West Central African, and East Central African missions). The following is the general summary of the entire work for 1885-'86:

Missions:.....	22
Stations.....	55
Out-stations.....	810
Ordained missionaries (10 being physicians).....	159
Physicians not ordained, 7 men and 4 women.....	11
Other male assistants.....	7
Women (wives, 136; unmarried, besides physicians, 101).....	257
Whole number of laborers sent from this country.....	494
Native pastors.....	151
Native preachers and catechists.....	412
Native school-teachers.....	1,141
Other native helpers.....	260—1,964
Whole number of laborers.....	2,398

Pages printed, as nearly as can be learned.....	15,145,716
Churches.....	310
Church-members.....	26,065
Added during the year.....	8,451
Whole number from the first, as nearly as can be learned.....	98,183
High-schools, theological seminaries, and station-classes.....	56
Pupils in the above.....	2,852
Boarding-school for girls.....	41
Pupils in boarding-school for girls.....	1,953
Common schools.....	836
Pupils in common schools.....	82,577
Whole number under instruction.....	89,877

American Missionary Association.—The fortieth anniversary of the American Missionary Association was held in New Haven, Conn., Oct. 19 to 21. The Hon. William B. Washburne, of Massachusetts, presided. The general receipts of the society for the year had been \$335,704; besides which \$3,000 had been added to the endowment fund, and receipts were returned by Berea College of \$25,644; by Hampton Institute, of \$91,905; and by Atlanta University, of \$10,100; making the total receipts \$466,353. The expenditures had been \$341,488; of which \$197,345 had been applied for churches, educational work, land, buildings, etc., in the South; \$11,756 for work among the Chinese; \$54,884 for work among the Indians; and \$6,065 for foreign missionary work.

The report of the missionary and educational work showed that the number of churches under the care of the Association was 124; that they were served by 117 missionaries, and returned 7,571 church-members; and that 1,088 persons had been received during the year on profession of faith. The number of pupils in Sunday-schools was 13,149. Twelve new churches had been organized during the year, and 2,500 had been added to the number of pupils in Sunday-schools. Fifty-three schools had been sustained, with 239 instructors and 8,753 pupils, classified as follows: Students of theology, 118; of law, 78; collegiate students, 53; collegiate preparatory, 95; normal students, 799; grammar grade, 1,597; intermediate, 2,348; primary, 3,766. Thirty-three of these schools were common schools, and were situated in North and South Carolina, Georgia, Florida, Alabama, Texas, Tennessee, Kentucky, and Arkansas. Fourteen of them were normal.

The Association had among the Indians 5 churches, with 348 members; 15 schools, with 685 pupils; and 56 missionaries and teachers. Its missions among the Chinese (in California) included 18 schools, with 1,279 pupils, and 34 missionaries; and returned 123 hopeful conversions.

Congregational Council.—The fifth triennial meeting of the Congregational Council was held in Chicago, Ill., beginning October 13. The Hon. L. A. Cook, of Connecticut, presided, assisted by the Rev. B. A. Jones, of Tennessee, and the Rev. J. K. McLean, D. D., of California. The secretary made a statistical report which showed that the churches associated in the Council numbered by the last summary 4,170. The gain in three years had been 234, or an average of 78 yearly. But the number of churches organ-

ized was 513, or a yearly average of 171; of these 513 churches, 76 were in the East (east of the east line of Ohio), 198 in the interior (between that line and the west line of Missouri), and 239 in the West; and of the last number 86 were in the Territory of Dakota. Of the members of all the churches, 216,118 were in the East, 126,206 in the interior, and 29,240 in the West—giving an average to each church of 39 members in the West, 81 in the interior, 141 in the East, and 100 for the whole country. The gain in the number of members of Sunday-schools had been greater in the last year than was ever before recorded. The rate of increase in the number of members of the Church did not keep pace with the increase of population of the country, but the number of infant baptisms was increasing. The gifts for benevolent purposes during the last ten years had averaged \$1,385,859 a year; or, if the "Slater gift" of \$1,000,000 be excluded from this account, the annual average would still be \$1,285,859. The increase in the gifts made in 1885 over those returned for 1884 was \$176,000. The "home expenditures" of the churches in the last year had exceeded \$4,000,000, and gave an average of \$1,442 to each reporting church. The total value of 2,515 churches was returned at \$24,607,476, representing an average of \$9,784 for each church. Parsonages were reported by 1,092 churches, with an average value of \$2,189. The average of the pastors' salaries reported by 2,230 churches was \$982, but this would have been reduced had returns been made by all the churches. Notice had been received of a bequest of \$10,000, which had been left by Mrs. Ellen C. Knowles, of Worcester, Mass., to be applied under the direction of the Council in aid of the aged or disabled ministers of the gospel, or their widows and orphan children. The gift was accepted, with expressions of grateful acknowledgment. A gift was also offered by Mr. Albert Curtis of \$15,000 toward the establishment of a home for disabled ministers, their wives and widows.

The following declaration was adopted on the subject of ministerial standing:

Resolved, That standing in the Congregational ministry is acquired by the fulfillment of these three conditions—viz: 1. Membership in a Congregational church; 2. Ordination to the Christian ministry; and, 3. Reception as an ordained minister into the fellowship of the Congregational churches, in accordance with the usage of the State or Territorial organization of churches in which the applicant may reside, and such standing is to be continued in accordance with these usages; it being understood that a *pro re nata* council is an ultimate resort in all questions.

Resolved, That all Congregational ministers in good standing in their respective States who have been installed by Council, or who have been regularly called to the pastorate by the specific vote of some church, have formally accepted such position, and have been recognized as such by some definite act of the Church, should be enrolled as pastors; and we advise that all our denominational statistics and direct that, as far as possible, our "Year-Book" shall conform to this principle.

Resolved, That the National Council commends to the churches, in accordance with our ancient usage,

the importance of properly called ecclesiastical councils ordinarily selected from the vicinage, and especially the great importance of installing ministers to the pastorate by councils where it is practicable and conducive to the purity of the ministry and the prosperity of the churches.

Resolved., That the State organizations and local organizations of churches are recommended to consider such modification of their constitution as will enable them to become responsible for the ministerial standing of ministers within their bounds, in harmony with the principle that the churches of any locality decide upon their own fellowship.

The committee on ministerial supply made a report showing that much of every minister's time was wasted in finding a pastorate, notwithstanding there was always a demand for pastors; suggesting that a bureau for the purpose of finding pastorates for unemployed ministers might be a useful institution; citing the fact that many ministers out of employment as pastors were engaged as superintendents, professors, etc., as evidence that not so large a number of ministers were idle as might otherwise seem to be; and hinting that the remedy for ministers staying unemployed might be gained by every minister wishing employment being "willing to go anywhere that the Lord his Master would have him go." A committee was appointed to confer with representatives of the Free-Will Baptist churches on the subject of union, and also "to seek and promote fellowship or union with any other body of Christians"; and a resolution was passed declaring "that we rejoice to acknowledge the fact that all Christians are members of the one Church of Christ, whatever be the form of their organization, and that we will gladly co-operate in every effort to make this fact visible to the world." The attention of Congress and the President of the United States was invited to the urgency of a revision of the laws governing marriage and divorce, particularly in the District of Columbia and the Territories; and other denominations were invited to co-operate with the Council in this matter. The employment of evangelists under the direction of State and local conferences and associations, to labor where called for, either by the churches or the needs of destitute localities, was commended and advised; and the theological seminaries were invited to provide a more adequate training of young men for this work. The Council resolved to urge upon Congress "the duty of making immediate payment of all well authenticated claims presented by the Chinese, and of making such pecuniary reparation for loss of life as may seem just; also that it is the duty of Congress to take measures for the punishment of those who have committed outrages upon the Chinese, and to take such other action as may seem advisable to render the lives and property of the Chinese as sure as the lives and property of other persons"; and the Provisional Council was instructed to make a suitable presentation of this subject. Efforts were resolved upon to obtain \$50,000 each for the Scandinavian and German departments of

the Chicago Theological Seminary; the same sum for the Slavic department at Oberlin; and \$100,000 as a "National Council Exigency Loan Fund," for establishing or aiding churches doing mission work in large cities and other important centers of population. A standing committee was appointed to observe the progress of the work of city evangelization. A standing committee on "systematic beneficence" was appointed, to promote, by conference and other means, the wise distribution of the offerings of the denomination for missionary purposes.

The "Andover Cases."—The preliminary hearing against five professors in Andover Theological Seminary—viz., Profs. Smyth, Tucker, Churchill, Harris, and Hincks—was begun before the Board of Visitors of the seminary in Boston, Oct. 25. The defendants were charged in the complaint with holding beliefs and having taught doctrines and theories, and done other things, which "are not in harmony with, but antagonistic to, the constitution and statutes of the seminary and the true intention of its founders, as expressed in those statutes"; also, that they were not men of sound and orthodox principles in divinity, according to the fundamental and distinguishing doctrines of the gospel, as summarily expressed in the Westminster Assembly's Shorter Catechism, and more particularly expressed in the creed of the seminary. More definitely, the indictment charged them with holding, maintaining, and inculcating—

1. That the Bible is not the only perfect rule of faith and practice, but is fallible and untrustworthy, even in some of its religious teachings.
2. That Christ, in the days of his humiliation, was merely a finite being, limited in all his attributes, capacities, and attainments.
3. That no man has power or capacity to repent without knowledge of the historic Christ.
4. That mankind, save as instructed in the knowledge of the historic Christ, are not sinners, or, if they are, not of such sinfulness as to be in danger of being lost.
5. That no man can be lost without having had knowledge of Christ.
6. That the atonement of Christ consists essentially and chiefly in his becoming identified with the human race through his incarnation, in order that by his union with men he might endow them with the power to repent, and thus impart to them an augmented value in the view of God, and so propitiate God to men and men to God.
7. That the Trinity is modal and not personal.
8. That the work of the Holy Spirit is mainly limited to natural methods and within historic Christianity.
9. That, without the knowledge of the historic Christ, men do not deserve the punishment of the law, and that, therefore, their salvation is not "wholly of grace."
10. That faith ought to be scientific and natural, rather than scriptural.
11. That there is and will be probation after death for all men who have not in this world had knowledge of the historic Christ.
12. That this hypothetical belief in probation after death should be brought to the front, exalted, and made central in theology and in the beliefs of men.
13. That Christian missions are not to be supported and conducted on the ground that men who know not

Christ are in danger of perishing forever and must perish forever unless saved in this life.

14. That a system of physical and metaphysical philosophy is true which, by fair inference, neutralizes the Christian doctrine as taught in the creed of the seminary.

15. That there is a "new theology better than the old," which we apprehend is not in harmony with the creed, but fatally opposed to the same.

16. That the said professors hold many things which can not be reconciled with that orthodox and consistent Calvinism which the statutes require of them, and to which they stand publicly committed, and that in repeated instances these professors have broken solemn promises made when they subscribed to the creed.

The counsel for the accused pleaded in answer to the charges, denying the jurisdiction of the Board of Visitors, which they held was not an original court, but had only appellate power; affirming that proceedings had been begun before the Board of Trustees of the Seminary, and were still pending; contending that the defendants, if tried, must be tried singly, and not in a body, and insisting that the charges were too indefinite. The Visitors decided, after hearing the arguments of counsel, that they had original jurisdiction in the premises; that no proceedings were pending in the Board of Trustees for the same alleged offense; and that the complainants were rightly before the board. But they directed that the charges should be amended so as to proceed against the respondents individually and separately; and that such charges as were indefinite should be made plain. A set of complaints, amended so as to present the charges in a more specific form, and with the support of citations from written or spoken expressions of the several defendants and applying separately to each of the five professors, was sent in to the Board of Visitors, according to its order, on the 8th of November. A motion to dismiss the cases was filed on the 27th of November, and denied by the board; and, after this, the formal answers of the defendants were filed. They comprehended denial of the charges as a whole, and pleas to the definiteness, relevancy, or sufficiency of the same severally.

The hearing in the cases was begun at Boston, Dec. 28, when the case of Prof. Smyth was taken up first, and the opening arguments were made. The hearing was concluded during the week, but the decision of the court had not yet been declared at the end of the year.

Congregational Statistics of England and Wales.—The numerical returns of the Congregational churches of England and Wales, as given in the "Congregational Year-Book" for 1886, showed that there were 4,384 churches, branch churches, and missionary stations, providing sitting accommodations for 1,582,400 adults. Twenty-four new churches had been formed during the year. The number of students under ministerial training in the institutions of the denomination (not including 300 native students in the ten institutions of the London Missionary Society) was 450. The London Missionary Society returned 162 English mis-

sionaries, 1,082 native ordained missionaries and pastors, 5,054 native preachers, 91,407 church-members, and 325,171 native adherents.

Congregational Union of England and Wales.—The fifty-fourth annual meeting of the Congregational Union of England and Wales was held in London, beginning May 10. The Rev. Edward White presided and delivered the opening address. The committee, in its annual report, remarked that, while political issues of first-rate importance had been before the nation, they having no direct bearing on the interests which the Union was set to protect, it had placed nothing on record with respect to them, except an expression of opinion that Sir R. Webster's bill did not deal satisfactorily with the question of nonconformist marriages. In regard to a contemplated joint meeting of the Baptist and Congregational Unions, the explanation was made that they ought not to be understood to be meetings in which one body receives the other as its guest, but as "strictly joint or mass meetings of the two bodies; that the occasion is not one for dealing with matters of faith and practice in which the two bodies differ; and that there is not behind the meeting any unrevealed scheme for the removal of denominational landmarks." The number of persons who had offered themselves for the examinations in religious knowledge, instituted by the Union, had diminished; and, in view of the comparative failure which appeared to have so far attended the efforts, it seemed desirable to consider whether some method might not be devised to make these examinations more attractive and useful. The financial statement showed balances in favor of the Union amounting to £9,334. The Assembly declared, by resolution, that, regarding the appointment of a royal commission on national education, as raising anew the question of the basis on which a national system of education should be placed, it renewed its protest "against the violation of the principle of religious equality involved in the present system," and affirmed that no system would be satisfactory under which national funds were appropriated to schools or training colleges "which, being of a sectarian character, are under the sole control of denominational managers." A special committee was appointed to consider the subject of social purity.

Church Aid Society.—The Congregational Church Aid Society reported that during the year it had assisted 697 churches and branch churches, and 334 evangelistic or mission stations, in all 1,031 congregations, having an attendance of 108,342 persons, of whom 37,270 were church-members. The grants amounted to £22,887, and the churches had raised from their own resources £33,722.

London Missionary Society.—The annual meeting of the London Missionary Society was held May 13. Mr. Edward Crossley, M. P., presided. The income of the society for the year had been £124,078. A debt of £11,400, with which

the year had been begun, had been cleared off. The society was not yet, however, paying its way, and, to balance expenses, the reserve fund would have to be drawn upon.

Joint Meeting of the Baptist and Congregational Unions.—A joint assembly of the Congregational and Baptist Unions was held May 14. The Rev. C. Williams, chairman of the Baptist Union, read a paper in which he remarked that as the two denominations had worked so long along the same lines in fighting the fight for religious equality, it was a matter of surprise that this should have been their first joint meeting. Their aim that day was not to assert themselves as denominations against other churches, or even to lay stress upon ecclesiastical peculiarities at all, but to stimulate one another to seek inward spiritual force. The Rev. Dr. Conder, Congregationalist, followed with a paper on "The Idea of a Christian Church held in Common by the Two Bodies"; the Rev. J. W. Lance, Baptist, read a paper on the promotion and preservation of truth by those true to the idea; and the Rev. Dr. Angus a paper on "Fidelity to the Idea in its Bearing on the Upraising of a Consecrated Christian Ministry." A resolution was passed expressing the concurrence of the meeting in the sentiments embodied in these four papers. The public evening meeting was presided over by the Rev. Edward White, chairman of the Congregational Union, who spoke of "The Great Cloud of Witnesses," as presented by the missionaries and others who were working for the spread of Christian truth in the mission-fields and other parts of the world. The Rev. Dr. Clifford spoke on "The New Democracy and the Old Testament"; the Rev. J. G. Rogers on Congregationalism as a "Church System"; the Rev. Edward Glover on "The Foreign Mission Work of the Churches"; and the Rev. Dr. Parker on "The Larger Congregationalism and the Larger England."

Autumnal Meeting of the Union.—The autumnal meeting of the Union was held at Norwich, October 12. The chairman, the Rev. Edward White, delivered the opening address on "Handling the Scriptures." The subject and relations of non-conformity were discussed in papers on "Non-conformity in the Reign of the Queen" (an historical review), by Mr. Albert Spicer; "The Influence and Progress of Non-conformity as a Spiritual Force," by the Rev. John Brown; "The Influence and Progress of Non-conformity as a Political Force," by Mr. Carvell Williams; and "The Work which lies before Non-conformity," by the Rev. Dr. Bruce; other papers were read on the "Need of Well-devised Arrangements for Correspondence concerning Pastoral Settlements," by the Rev. William Clarkson; "The Influence of the Churches on National Stability and Progress," by the Rev. Dr. Hannay; "Revival Missions," by Prof. Cave, the Rev. J. F. B. Tinling, and the Rev. R. Balgarnie; "Religion out of the Church," by the Rev. T. H. Hollowell; and "What Christ

has done for the People," by the Rev. G. R. Balgarnie. A minute was adopted upon the death of Mr. Samuel Morley, saying that he had been a beloved and honored fellow-worker with the Union during the last fifty years, and recognizing "the wisdom he had brought to council, the purity and force of his personal influence, his affluent liberality, and his work as a reformer in the diffusion of knowledge, of purity, of temperance, and of thrift, and in the abolition of unjust laws." The committee of the Union was instructed to prepare a suitable address to the Queen on the occasion of her jubilee year, expressing the loyalty of the Congregational people.

CONGRESS OF CHURCHES.—The second annual meeting of the American Congress of Churches was held in Cleveland, O., beginning May 25. The Hon. Joseph B. Foraker, Governor of Ohio, presided and made an opening address. The Rev. Dr. Joseph Andrews, chairman of the Council, made a report on "The First Year of the Congress," the first meeting having been held in Hartford in 1885, and in it reiterated a definition of the scope and purpose of the body. The purpose was not to establish a society or organize a plan of union or put forth a creed, but simply "by holding public meetings from time to time to make provision for a full and frank discussion of the great subjects in which the Christians of America are interested, including those ecclesiastical and theological questions upon which Christians differ," and it had been distinctly asserted in all the announcements of the Council that no intention was had of "excluding any church, or of expressing an opinion in regard to the relative value and excellence of any." The subject of "A True Church; its Essentials and its Characteristics," was discussed in papers by Mr. D. G. Porter and the Rev. Leonard W. Bacon, D. D. Upon the subject of "Religion in the Public Schools," papers were read by the Rev. Dr. D. S. Stephens; Bishop Gilmour, of Cleveland, who represented the position of the Roman Catholic Church; and the Rev. J. Coleman Adams. Other topics considered were "The Present Necessity of a Re-statement of Christian Beliefs," by the Rev. Daniel Curry, D. D., the Rev. E. P. Parker, D. D., the Rev. Reuben Jeffrey, D. D., the Rev. Otis A. Glazebrook, and the Rev. R. B. Tyler; "The Workingman's Distrust of the Church; its Causes and Remedies," by the Rev. Wayland Hoyt, D. D., Mr. John Jarrett, ex-President of the Amalgamated Iron and Steel Association, Mr. Henry George, the Rev. William Wilberforce Newton, and the Rev. E. S. Lorenz; "Re-adjustments of the Church to meet Modern Needs," 1. In the methods of dealing with and reaching the poor in cities, by the Rev. R. B. Tyler and the Rev. W. S. Rainsford, D. D.; 2. In country towns and on the frontier, by the Rev. S. W. Dike and the Rev. William Barrows, D. D.; 3. In foreign missionary fields, by the Rev. E. S. Lowrey and the Rev. Archdeacon W. W. Kirby.

CONGRESS OF THE UNITED STATES. On Monday, Dec. 7, 1885, the day prescribed by the Constitution for the annual meeting, the first session of the Forty-ninth Congress began.

The Senate, during the session, was composed of the following members, the term of each one expiring at the date given before his name:

<i>Alabama.</i>	<i>Massachusetts.</i>
1891. James L. Pugh, D.	1889. George F. Hoar, R.
1889. John T. Morgan, D.	1887. Henry L. Dawes, R.

<i>Arkansas.</i>	<i>Michigan.</i>
1891. James K. Jones, D.	1889. Thomas W. Palmer, R.
1889. James H. Berry, D. ¹	1887. Omar D. Conger, R.

<i>California.</i>	<i>Minnesota.</i>
1891. Leland Stanford, R.	1889. Dwight M. Sabin, R.
1887. George Hearst, D. ²	1887. S. J. R. McMillan, R.

<i>Colorado.</i>	<i>Mississippi.</i>
1891. Henry M. Teller, R.	1889. E. C. Walhall, D. ⁵
1889. Thomas M. Bowen, R.	1887. James Z. George, D.

<i>Connecticut.</i>	<i>Missouri.</i>
1891. Orville H. Platt, R.	1891. George G. Vest, D.
1887. Joseph R. Hawley, R.	1887. Francis M. Cockrell, D.

<i>Delaware.</i>	<i>Nebraska.</i>
1889. Eli Saulsbury, D.	1889. C. F. Manderson, R.
1887. George Gray, D. ³	1887. C. H. Van Wyck, R.

<i>Florida.</i>	<i>Nevada.</i>
1891. Wilkinson Call, D.	1891. John P. Jones, R.
1887. Charles W. Jones, D.	1887. James G. Fair, D.

<i>Georgia.</i>	<i>New Hampshire.</i>
1891. Joseph E. Brown, D.	1891. Henry W. Blaik, R. ⁶
1889. Alfred H. Colquitt, D.	1889. Austin F. Pike, R. ⁷

<i>Illinois.</i>	<i>New Jersey.</i>
1891. John A. Logan, R. ⁴	1889. John R. McPherson, D.
1889. Shelby M. Cullom, R.	1887. William J. Sewell, R.

<i>Indiana.</i>	<i>New York.</i>
1891. Daniel W. Voorhees, D.	1891. William M. Evarts, R.
1887. Benjamin Harrison, R.	1887. Warner Miller, R.

<i>Iowa.</i>	<i>North Carolina.</i>
1891. William B. Allison, R.	1891. Zebulon B. Vance, D.
1889. James F. Wilson, R.	1889. Matt. W. Ransom, D.

<i>Kansas.</i>	<i>Ohio.</i>
1891. John James Ingalls, R.	1891. Henry B. Payne, D.
1889. Preston B. Plumb, R.	1887. John Sherman, R.

<i>Kentucky.</i>	<i>Pennsylvania.</i>
1891. J. C. S. Blackburn, D.	1891. John H. Mitchell, R. ⁸
1889. James B. Beck, D.	1889. Joseph N. Dolph, R.

<i>Louisiana.</i>	<i>Rhode Island.</i>
1891. James B. Eustis, D.	1891. J. D. Cameron, R.
1889. Randall L. Gibson, D.	1887. John I. Mitchell, R.

<i>Maine.</i>	<i>South Carolina.</i>
1889. William P. Frye, R.	1889. Jonathan Chace, R.
1887. Eugene Hale, R.	1887. Nelson W. Aldrich, R.

<i>Maryland.</i>	<i>Tennessee.</i>
1891. Ephraim K. Wilson, D.	1891. Wade Hampton, D.
1887. Arthur P. Gorman, D.	1889. Matthew C. Butler, D.

¹ Qualified March 25, 1885, in place of Augustus H. Garland, resigned March 6, to become Attorney-General.

² Qualified April 9, 1886, to succeed John F. Miller, died March 8, 1886.

³ Qualified March 9, 1885, to take the place of Thomas F. Bayard, resigned March 6, 1885, to become Secretary of State.

⁴ Died Dec. 26, 1886.

⁵ Qualified March 12, 1885, in place of Lucius Q. C. Lamar, resigned to become Secretary of the Interior, March 6, 1885. Qualified Jan. 25, 1886, under election.

⁶ Qualified March 10, 1885, under Executive appointment, and Dec. 7, 1885, on credentials of election.

⁷ Died Oct. 8, 1886, succeeded by P. C. Cheney.

⁸ Qualified Dec. 17, 1885.

*Tennessee.**Virginia.*

1889. Isham G. Harris, D.	1890. H. H. Riddleberger, R.
1887. W. C. Whitthorne, D. ⁹	1887. William Mahone, R.

*Texas.**West Virginia.*

1889. Richard Coke, D.	1889. John E. Kenna, D.
1887. Samuel Bell Maxey, D.	1887. Johnson N. Camden, D.

*Vermont.**Wisconsin.*

1891. Justin S. Morrill, R.	1891. John C. Spooner, R.
1887. G. F. Edmunds, R.	1887. Philetus Sawyer, R.

Of the 76 members, 41 were Republicans and 35 Democrats. Dec. 7, 1885, John Sherman, of Ohio, was chosen President *pro tempore* of the Senate, by a vote of 34 to 29 cast for Isham G. Harris, of Tennessee.

The House of Representatives, during the session, was composed of 325 members, of whom 184 were Democrats, 139 Republicans, and 2 Greenback-Labor men. The following is the roll:

Alabama.

James T. Jones, D.	Thomas W. Sadler, D.
Hilary A. Herbert, D.	John M. Martin, D.
William C. Oates, D.	William H. Forney, D.
Alexander C. Davidson, D.	Joseph Wheeler, D.

Arkansas.

Poindexter Dunn, D.	John H. Rogers, D.
C. E. Breckenridge, D.	Samuel W. Peel, D.
Thomas C. McRae, D. ¹⁰	

California.

Barclay Henley, D.	W. W. Morrow, R.
J. A. Louttit, R.	Charles N. Felton, R.
Joseph McKenna, R.	H. H. Markham, R.

Colorado.

George G. Symes, R.

Connecticut.

John R. Buck, R.	John T. Wait, R.
Charles L. Mitchell, D.	Edward W. Seymour, D.

Delaware.

Charles B. Lore, D.

Florida.

Robert H. M. Davidson, D. Charles Dougherty, D.

Georgia.

Thomas M. Norwood, D.	James H. Blount, D.
Henry G. Turner, D.	Judson C. Clements, D.
Charles F. Crisp, D.	Seaborn Reese, D.
Henry R. Harris, D.	Allen D. Candler, D.
N. J. Hammond, D.	George T. Barnes, D.

Illinois.

Ransom W. Dunham, R.	William H. Neece, D.
Frank Lawler, D.	James M. Riggs, D.
James H. Ward, D.	William M. Springer, D.
George E. Adams, R.	Jonathan H. Rowell, R.
A. J. Hopkins, R. ¹¹	Joseph G. Cannon, R.
Robert R. Hitt, R.	Silas Z. Landes, D.
Thomas J. Henderson, R.	John R. Eden, D.
Ralph Plumb, R.	William R. Morrison, D.
Lewis E. Payson, R.	Richard W. Townshend, D.
Nicholas E. Worthington, D.	John R. Thomas, R.

Indiana.

John J. Kleiner, D.	James T. Johnston, R.
Thomas R. Cobb, D.	Thomas B. Ward, D.
Jonas G. Howard, D.	William D. Owen, R.
William S. Holman, D.	George W. Steele, R.
Courtland C. Matson, D.	Robert Lowry, D.
Thomas M. Browne, R.	George Ford, D.
William D. Bynum, D.	

⁹ Qualified April 26, 1886, to succeed Howell E. Jackson, appointed Circuit Judge, April 14, 1886.

¹⁰ Succeeded James K. Jones, resigned March 4, 1885.

¹¹ Qualified Dec. 7, 1885, in place of Reuben Elwood, died July 1, 1885.

	<i>Iowa.</i>	<i>New York.</i>
B. J. Hall, D. J. H. Murphy, D. David B. Henderson, R. William E. Fuller, R. Benj. T. Frederick, D. J. B. Weaver, D. G.	Edwin H. Conger, R. William P. Hepburn, R. Joseph Lyman, R. Adoniram J. Holmes, R. Isaac S. Struble, R.	Perry Belmont, D. Felix Campbell, D. Darwin R. James, R. Peter P. Mahoney, D. Archibald M. Bliss, D. Nicholas Muller, D. John J. Adams, D. Timothy J. Campbell, D. ² Joseph Pulitzer, D. ⁴ Abram S. Hewitt, D. Truman A. Merriman, D. Abraham Dowdney, D. ⁵ Egbert L. Viele, D. William G. Stahnecker, D. Lewis Beach, D. ⁶ John H. Ketcham, R. James G. Lindsey, R.
E. N. Morrill, R. E. H. Funston, R. Bishop W. Perkins, R. Thomas Ryan, R.	John A. Anderson, R. Lewis Hanback, R. Samuel R. Peters, R.	Henry G. Burleigh, R. John Swinburne, R. George West, R. Frederick A. Johnson, D. Abraham X. Parker, R. J. Thomas Spriggs, D. John S. Pindar, D. Frank Hiscock, R. Stephen C. Millard, R. Sereno E. Payne, R. John Arnot, Jr., D. ⁷ Ira Davenport, R. Charles S. Baker, R. John G. Sawyer, R. John M. Farquhar, R. John B. Weber, R. Walter L. Sessions, R.
William J. Stone, D. Polk LaFoon, D. John E. Haisell, D. Thomas A. Robertson, D. Albert S. Willis, D. John G. Carlisle, D.	William C. P. Breckinridge, D. James B. McCreary, D. W. H. Wadsworth, R. W. P. Taubee, D. Frank L. Wolford, D.	North Carolina.
Louis St. Martin, D. Nathaniel D. Wallace, D. ¹ Edward J. Gray, D.	Newton C. Blanchard, D. J. Floyd King, D. Alfred B. Irion, D.	Thomas G. Skinner, D. James E. O'Hara, R. Wharton J. Green, D. William R. Cox, D. James W. Reid, D.
Thomas B. Reed, R. Nelson Dingley, Jr., R.	Seth L. Milliken, R. Charles A. Boutelle, R.	Ohio.
Charles H. Gibson, D. Frank T. Shaw, D. William H. Cole, D. ²	John V. L. Findlay, D. Barnes Compton, D. Louis E. McComas, R.	Albert C. Thompson, R. Charles E. Brown, R. James E. Campbell, D. Charles M. Anderson, D. Benjamin Le Fevre, D. William D. Hill, D. George E. Seney, D. John Little, R. William C. Cooper, R. Jacob Romeis, R. ⁸ W. W. Ellsberry, D.
Robert T. Davis, R. John D. Long, R. Ambrose A. Ranney, R. Patrick A. Collins, D. Edward D. Hayden, R. Henry B. Lovering, D.	Eben F. Stone, R. Charles H. Allen, R. Frederick D. Ely, R. William W. Rice, R. William Whiting, R. Francis S. Rockwell, R.	Oregon.
William C. Maybury, D. Nathaniel B. Eldredge, D. James O'Donnell, R. Julius C. Burrows, R. Charles C. Comstock, D. Edwin B. Winans, D.	Ezra C. Carleton, D. Timothy E. Tarsney, D. Byron M. Cutcheen, R. Spencer O. Fisher, D. Seth C. Moffatt, R.	Binger Herman, R.
Milo White, R. J. B. Wakefield, R. H. B. Strait, R.	John B. Gilfillan, R. Knut Nelson, R.	Pennsylvania.
John M. Allen, D. J. B. Morgan, D. T. C. Catchings, D. F. G. Barry, D.	O. R. Singleton, D. H. S. Van Eaton, D. E. Barksdale, D.	E. S. Osborne (<i>at large</i>), R. Henry H. Birmingham, R. Charles O'Neill, R. Samuel J. Randall, D. William D. Kelley, R. Alfred C. Harmer, R. James B. Everhart, R. I. Newton Evans, R. Daniel Ermentrout, D. John A. Hiestand, R. William H. Sowden, D. John B. Storm, D. Joseph A. Scranton, R. Charles N. Brunn, R. G.
Mississippi.	Missouri.	Franklin Bound, R. Frank C. Bunnell, R. William W. Brown, R. Jacob M. Campbell, R. Louis E. Atkinson, R. John A. Sloope, D. ⁹ Andrew G. Curtin, D. Charles E. Boyle, D. James S. Negley, R. Thomas M. Bayne, R. Oscar L. Jackson, R. Alexander C. White, R. George W. Fleeger, R. William L. Scott, D.
Archibald J. Weaver, R. James Laird, R.	Nebraska.	Rhode Island.
William H. Hatch, D. John B. Hale, D. Alexander M. Dockery, D. James N. Burnes, D. William Warner, R. John T. Heard, D. John E. Hutton, D.	George W. E. Dorsey, R.	Henry J. Spooner, R.
Martin A. Haynes, R.	Nevada.	South Carolina.
George Hires, R. James Buchanan, R. Robert S. Green, D. James N. Plidcock, D.	William Woodburn, R.	Samuel Dibble, D. George D. Tillman, D. D. Wyatt Aiken, D. William H. Perry, D.
Martin A. Haynes, R.	New Hampshire.	A. H. Pettibone, R. L. C. Hoyt, R. John R. Neal, D. Benton McMillin, D. James D. Richardson, D.
New Jersey.	Jacob H. Gallinger, R.	A. J. Caldwell, D. J. G. Ballantine, D. John M. Taylor, D. P. T. Glass, D. Zach, Taylor, R.
William W. Phelps, R. Herman Leiblach, R. William McAdoo, D.	Charles Stewart, D. J. H. Reagan, D. J. H. Jones, D. D. B. Culberson, D. J. W. Throckmorton, D. Olin Wellborn, D.	Tennessee.
William W. Phelps, R. Herman Leiblach, R. William McAdoo, D.	W. H. Crain, D. J. F. Miller, D. R. Q. Mills, D. J. D. Sayers, D. S. W. T. Lenham, D.	Texas.

¹ Qualified June 8, 1886, in place of Michael Hahn, died March 14, 1886.

² Died July 8, 1886.

³ Qualified Dec. 7, 1886, in place of Samuel S. Cox, resigned, May 20, 1885.

⁴ Resigned April 10, 1886; succeeded by S. S. Cox.

⁵ Died Dec. 10, 1886.

⁶ Died Aug. 11, 1886.

⁷ Died Nov. 20, 1886.

⁸ Right to seat confirmed April 14, 1886, against contestant, Frank H. Hurd.

⁹ Successor to William A. Duncan, died Nov. 14, 1884.

Vermont.

John W. Stewart, R. William W. Grout, R.

Virginia.

Thomas Croxton, D. John W. Daniel, D.
Harry Libbey, R. Charles T. O'Ferrall, D.
George D. Wise, D. John S. Barbour, D.
James D. Brady, R. C. F. Trigg, D.
George C. Cabell, D. John E. Tucker, D.

West Virginia.

Nathan Goff, Jr., R. Charles P. Snyder, D.
William L. Wilson, D. Eustace Gibson, D.

Wisconsin.

Lucien B. Caswell, R. Richard Guenther, R.
Edward S. Bragg, D. Ormsby B. Thomas, R.
Robert M. La Follette, R. William T. Price, R.
Isaac W. Van Schaick, R. Isaac Stephenson, R.
Thomas R. Hudd, D.

Arizona—Curtis C. Bean, R.
Dakota—Oscar S. Gifford, R.
Idaho—John Halley, D.
Montana—Joseph K. Toole, D.
New Mexico—Anthony Joseph, D.
Utah—John T. Caine, D.
Washington—Charles S. Voorhees, D.
Wyoming—Joseph M. Carey, R.

The House organized by electing John G. Carlisle, of Kentucky, Speaker. There were 178 votes cast for him against 138 cast for Thomas B. Reed, of Maine. John B. Clark, Jr., of Missouri, was chosen Clerk; John P. Leedom, of Ohio, Sergeant-at-Arms; Lycurgus Dalton, of Indiana, Postmaster; Samuel Donelson, of Tennessee, Doorkeeper; and W. H. Milburn, of New York, Chaplain.

President's Message.—The President's annual message was submitted to Congress Dec. 8, 1885, and was as follows:

To the Congress of the United States:

Your assembling is clouded by a sense of public bereavement, caused by the recent and sudden death of Thomas A. Hendricks, Vice-President of the United States. His distinguished public services, his complete integrity and devotion to every duty, and his personal virtues, will find honorable record in his country's history.

Amply and repeated proofs of the esteem and confidence in which he was held by his fellow countrymen were manifested by election to offices of the most important trust and highest dignity; and at length, full of years and honors, he has been laid at rest amid universal sorrow and benediction.

The Constitution which requires those chosen to legislate for the people to annually meet in the discharge of their solemn trust also requires the President to give to Congress information of the state of the Union, and recommend to their consideration such measures as he shall deem necessary and expedient. At the threshold of a compliance with these constitutional directions, it is well for us to bear in mind that our usefulness to the people's interests will be promoted by a constant appreciation of the scope and character of our respective duties as they relate to Federal legislation. While the Executive may recommend such measures as he shall deem expedient, the responsibility for legislative action must and should rest upon those selected by the people to make their laws.

Contemplation of the grave and responsible functions assigned to the respective branches of the Government under the Constitution will disclose the partitions of power between our respective departments and their necessary independence, and also the need for the exercise of all the power intrusted to each in

that spirit of comity and co-operation which is essential to the proper fulfillment of the patriotic obligations which rest upon us as faithful servants of the people.

The jealous watchfulness of our constituencies, great and small, supplements their suffrages, and before the tribunal they establish every public servant should be judged.

It is gratifying to announce that the relations of the United States with all foreign powers continue to be friendly. Our position after nearly a century of successful constitutional government, maintenance of good faith in all our engagements, the avoidance of complications with other nations, and our consistent and amicable attitude toward the strong and weak alike, furnish proof of a political disposition which renders professions of good will unnecessary. There are no questions of difficulty pending with any foreign government.

The Argentine Government has revived the long dormant question of the Falkland Islands, by claiming from the United States indemnity for their loss, attributed to the action of the commander of the sloop-of-war "Lexington" in breaking up a piratical colony on those islands in 1881, and their subsequent occupation by Great Britain. In view of the ample justification for the act of the "Lexington," and the derelict condition of the islands before and after their alleged occupation by Argentine colonists, this Government considers the claim as wholly groundless.

Question has arisen with the Government of Austria-Hungary touching the representation of the United States at Vienna. Having, under my constitutional prerogative, appointed an estimable citizen of unimpeached probity and competence as minister at that court, the Government of Austria-Hungary invited this Government to take cognizance of certain exceptions, based upon allegations against the personal acceptability of Mr. Keiley, the appointed envoy, asking that, in view thereof, the appointment should be withdrawn. The reasons advanced were such as could not be acquiesced in without violation of my oath of office and the precepts of the Constitution, since they necessarily involved a limitation in favor of a foreign government upon the right of selection by the Executive, and required such an application of a religious test as a qualification for office under the United States as would have resulted in the practical disfranchisement of a large class of our citizens and the abandonment of a vital principle in our Government. The Austro-Hungarian Government finally decided not to receive Mr. Keiley as the envoy of the United States, and that gentleman has since resigned his commission, leaving the post vacant. I have made no new nomination, and the interests of this Government at Vienna are now in the care of the secretary of legation, acting as chargé d'affaires *ad interim*.

Early in March last, war broke out in Central America, caused by the attempt of Guatemala to consolidate the several states into a single government. In these contests between our neighboring states the United States forbore to interfere actively, but lent the aid of their friendly offices in deprecation of war and to promote peace and concord among the belligerents, and by such counsel contributed importantly to the restoration of tranquility in that locality.

Emergencies growing out of civil war in the United States of Colombia demanded of the Government at the beginning of this administration the employment of armed force to fulfill its guarantees under the thirty-fifth article of the treaty of 1846, in order to keep the transit open across the Isthmus of Panama. Desirous of exercising only the powers expressly reserved to us by the treaty, and mindful of the rights of Colombia, the forces sent to the Isthmus were instructed to confine their action to "positively and efficaciously" preventing the transit and its accessories from being "interrupted or embarrassed."

The execution of this delicate and responsible task

¹ Qualified March 18, 1886, in place of Joseph Rankin, died Jan. 14, 1886.

² Died Dec. 6, 1886.

necessarily involved police control where the local authority was temporarily powerless, but always in aid of the sovereignty of Colombia.

The prompt and successful fulfillment of its duty by this Government was highly appreciated by the Government of Colombia, and has been followed by expressions of its satisfaction.

High praise is due to the officers and men engaged in this service.

The restoration of peace on the Isthmus by the re-establishment of the constituted government there being thus accomplished, the forces of the United States were withdrawn.

Pending these occurrences, a question of much importance was presented by decrees of the Colombian Government, proclaiming the closure of certain ports then in the hands of insurgents, and declaring vessels held by the revolutionists to be piratical and liable to capture by any power. To neither of these propositions could the United States assent. An effective closure of ports not in the possession of the Government, but held by hostile partisans, could not be recognized; neither could the vessels of insurgents against the legitimate sovereignty be deemed *hostes humani generis* within the precepts of international law, whatever might be the definition and penalty of their acts under the municipal law of the state against whose authority they were in revolt. The denial by this Government of the Colombian propositions did not, however, imply the admission of a belligerent status on the part of the insurgents.

The Colombian Government has expressed its willingness to negotiate conventions for the adjustment by arbitration of claims by foreign citizens arising out of the destruction of the city of Aspinwall by the insurrectionary forces.

The interest of the United States in a practicable transit for ships across the strip of land separating the Atlantic from the Pacific has been repeatedly manifested during the last half-century.

My immediate predecessor caused to be negotiated with Nicaragua a treaty for the construction by and at the sole cost of the United States of a canal through Nicaraguan territory, and laid it before the Senate. Pending the action of that body thereon, I withdrew the treaty for re-examination. Attentive consideration of its provisions leads me to withhold it from resubmission to the Senate.

Maintaining, as I do, the tenets of a line of precedents from Washington's day, which proscribe entangling alliances with foreign states, I do not favor a policy of acquisition of new and distant territory or the incorporation of remote interests with our own.

The laws of progress are vital and organic, and we must be conscious of that irresistible tide of commercial expansion which, as the concomitant of our active civilization, day by day, is being urged onward by those increasing facilities of production, transportation, and communication to which steam and electricity have given birth; but our duty in the present instructs us to address ourselves mainly to the development of the vast resources of the great area committed to our charge, and to the cultivation of the arts of peace within our own borders, though jealously alert in preventing the American hemisphere from being involved in the political problems and complications of distant governments. Therefore, I am unable to recommend propositions involving paramount privileges of ownership or right outside of our own territory, when coupled with absolute and unlimited engagements to defend the territorial integrity of the state where such interests lie. While the general project of connecting the two oceans by means of a canal is to be encouraged, I am of opinion that any scheme to that end to be considered with favor should be free from the features alluded to.

The Tehuantepec route is declared by engineers of the highest repute and by competent scientists to afford an entirely practicable transit for vessels and cargoes, by means of a ship-railway, from the Atlan-

tic to the Pacific. The obvious advantages of such a route, if feasible, over others more remote from the axial lines of traffic between Europe and the Pacific, and particularly between the valley of the Mississippi and the western coast of North and South America, are deserving of consideration.

Whatever highway may be constructed across the barrier dividing the two greatest maritime areas of the world must be for the world's benefit, a trust for mankind, to be removed from the chance of domination by any single power, nor become a point of invitation for hostilities or a prize for warlike ambition. An engagement combining the construction, ownership, and operation of such a work by this Government, with an offensive and defensive alliance for its protection, with the foreign state whose responsibilities and rights we would share, is in my judgment inconsistent with such dedication to universal and neutral use, and would, moreover, entail measures for its realization beyond the scope of our national polity or present means.

The lapse of years has abundantly confirmed the wisdom and foresight of those earlier administrations which, long before the conditions of maritime intercourse were changed and enlarged by the progress of the age, proclaimed the vital need of interoceanic transit across the American Isthmus, and consecrated it in advance to the common use of mankind by their positive declarations and through the formal obligation of treaties. Toward such realization the efforts of my administration will be applied, ever bearing in mind the principles on which it must rest, and which were declared in no uncertain tones by Mr. Cass, who, while Secretary of State, in 1858, announced that "what the United States want in Central America, next to the happiness of its people, is the security and neutrality of the interoceanic routes which lead through it."

The construction of three transcontinental lines of railway, all in successful operation, wholly within our territory, and uniting the Atlantic and the Pacific Oceans, has been accompanied by results of a most interesting and impressive nature, and has created new conditions, not in the routes of commerce only, but in political geography, which powerfully affect our relations toward, and necessarily increase our interests in, any transisthmian route which may be opened and employed for the ends of peace and traffic, or in other contingencies, for uses inimical to both.

Transportation is a factor in the cost of commodities scarcely second to that of their production, and weighs as heavily upon the consumer.

Our experience already has proved the great importance of having the competition between land-carriage and water-carriage fully developed, each acting as a protection to the public against the tendencies to monopoly which is inherent in the consolidation of wealth and power in the hands of vast corporations.

These suggestions may serve to emphasize what I have already said on the score of the necessity of a neutralization of any interoceanic transit; and this can only be accomplished by making the uses of the route open to all nations and subject to the ambitions and warlike necessities of none.

The drawings and report of a recent survey of the Nicaragua Canal route, made by Chief-Engineer Menocal, will be communicated for your information.

The claims of citizens of the United States for losses by reason of the late military operations of Chili, in Peru, and Bolivia, are the subject of negotiation for a claims convention with Chili, providing for their submission to arbitration.

The harmony of our relations with China is fully sustained.

In the application of the acts lately passed to execute the treaty of 1880, restrictive of the immigration of Chinese laborers into the United States, individual cases of hardship have occurred beyond the power of the Executive to remedy, and calling for judicial determination.

The condition of the Chinese question in the Western States and Territories is, despite this restrictive legislation, far from being satisfactory. The recent outbreak in Wyoming Territory, where numbers of unoffending Chinamen, indisputably within the protection of the treaties and the law, were murdered by a mob, and the still more recent threatened outbreak of the same character in Washington Territory, are fresh in the minds of all, and there is apprehension lest the bitterness of feeling against the Mongolian race on the Pacific slope may find vent in similar lawless demonstrations. All the power of this Government should be exerted to maintain the amplest good faith toward China in the treatment of these men, and the inflexible sternness of the law in bringing the wrong-doers to justice should be insisted upon.

Every effort has been made by this Government to prevent these violent outbreaks and to aid the representatives of China in their investigation of these outrages; and it is but just to say that they are traceable to the lawlessness of men not citizens of the United States engaged in competition with Chinese laborers.

Race prejudice is the chief factor in originating these disturbances, and it exists in a large part of our domain, jeopardizing our domestic peace and the good relationship we strive to maintain with China.

The admitted right of a government to prevent the influx of elements hostile to its internal peace and security may not be questioned, even where there is no treaty stipulation on the subject. That the exclusion of Chinese labor is demanded in other countries where like conditions prevail, is strongly evidenced in the Dominion of Canada, where Chinese immigration is now regulated by laws more exclusive than our own. If existing laws are inadequate to compass the end in view, I shall be prepared to give earnest consideration to any further remedial measures, within the treaty limits, which the wisdom of Congress may devise.

The independent state of the Congo has been organized as a government, under the sovereignty of his Majesty the King of the Belgians, who assumes his chief magistracy in his personal character only, without making the new state a dependency of Belgium. It is fortunate that a benighted region, owing all it has of quickening civilization to the beneficence and philanthropic spirit of this monarch, should have the advantage and security of his benevolent supervision.

The action taken by this Government last year in being the first to recognize the flag of the International Association of the Congo has been followed by formal recognition of the new nationality which succeeds to its sovereign powers.

A conference of delegates of the principal commercial nations was held at Berlin last winter, to discuss methods whereby the Congo Basin might be kept open to the world's trade. Delegates attended on behalf of the United States on the understanding that their part should be merely deliberative, without imparting to the results any binding character so far as the United States were concerned. This reserve was due to the indisposition of this Government to share in any disposal by an international congress of jurisdictional questions in remote foreign territories. The results of the conference were embodied in a formal act of the nature of an international convention, which laid down certain obligations purporting to be binding on the signatories, subject to ratification within one year. Notwithstanding the reservation under which the delegates of the United States attended, their signatures were attached to the general act in the same manner as those of the plenipotentiaries of other governments, thus making the United States appear, without reserve or qualification, as signatories to a joint international engagement imposing on the signers the conservation of the territorial integrity of distant regions where we have no established interests or control.

This Government does not, however, regard its

reservation of liberty of action in the premises as at all impaired; and holding that an engagement to share in the obligation of enforcing neutrality in the remote valley of the Congo would be an alliance whose responsibilities we are not in a position to assume, I abstain from asking the sanction of the Senate to that general act.

The correspondence will be laid before you, and the instructive and interesting report of the agent sent by this Government to the Congo country, and his recommendations for the establishment of commercial agencies on the African coast are also submitted for your consideration.

The commission appointed by my predecessor last winter to visit the Central and South American countries and report on the methods of enlarging the commercial relations of the United States therewith, has submitted reports, which will be laid before you.

No opportunity has been omitted to testify the friendliness of this Government toward Corea, whose entrance into the family of treaty powers the United States were the first to recognize. I regard with favor the application made by the Corean Government to be allowed to employ American officers as military instructors, to which the assent of Congress becomes necessary, and I am happy to say this request has the concurrent sanction of China and Japan.

The arrest and imprisonment of Julio R. Santos, a citizen of the United States, by the authorities of Ecuador, gave rise to contention with that Government, in which his right to be released or to have a speedy and impartial trial on announced charges, and with all guarantees of defense stipulated by treaty, was insisted upon by us. After an elaborate correspondence, and repeated and earnest representations on our part, Mr. Santos was, after an alleged trial and conviction, eventually included in a general decree of amnesty and pardoned by the Ecuadorian Executive and released, leaving the question of his American citizenship denied by the Ecuadorian Government, but insisted upon by our own.

The amount adjudged by the late French and American Claims Commission to be due from the United States to French claimants on account of injuries suffered by them during the war of secession, having been appropriated by the last Congress, has been duly paid to the French Government.

The act of Feb. 25, 1885, provided for a preliminary search of the records of French prize-courts for evidence bearing on the claims of American citizens against France for spoliations committed prior to 1801. The duty has been performed, and the report of the agent will be laid before you.

I regret to say that the restrictions upon the importation of our pork into France continue, notwithstanding the abundant demonstration of the absence of sanitary danger in its use; but I entertain strong hopes that, with a better understanding of the matter, this vexatious prohibition will be removed. It would be pleasing to be able to say as much with respect to Germany, Austria, and other countries, where such food-products are absolutely excluded without present prospect of reasonable change.

The interpretation of our existing treaties of naturalization by Germany during the past year, has attracted attention by reason of an apparent tendency on the part of the Imperial Government to extend the scope of the residential restrictions to which returning naturalized citizens of German origin are asserted to be liable under the laws of the empire. The temperate and just attitude taken by this Government with regard to this class of questions will doubtless lead to a satisfactory understanding.

The dispute of Germany and Spain relative to the domination of the Caroline Islands has attracted the attention of this Government, by reason of extensive interests of American citizens having grown up in those parts during the past thirty years; and because the question of ownership involves jurisdiction of matters affecting the status of our citizens under civil

and criminal law. While standing wholly aloof from the proprietary issues raised between powers to both of which the United States are friendly, this Government expects that nothing in the present contention shall unfavorably affect our citizens carrying on a peaceful commerce or there domiciled, and has so informed the Governments of Spain and Germany.

The marked good-will between the United States and Great Britain has been maintained during the past year.

The termination of the fishing clauses of the Treaty of Washington, in pursuance of the joint resolution of March 3, 1833, must have resulted in the abrupt cessation on the 1st of July of this year, in the midst of their ventures, of the operations of citizens of the United States engaged in fishing in British-American waters, but for a diplomatic understanding reached with her Majesty's Government in June last, whereby assurance was obtained that no interruption of those operations should take place during the current fishing season.

In the interest of good neighborhood and of the commercial intercourse of adjacent communities, the question of the North American fisheries is one of much importance. Following out the intimation given by me when the extorsory arrangement above described was negotiated, I recommend that the Congress provide for the appointment of a commission in which the Governments of the United States and Great Britain shall be respectively represented, charged with the consideration and settlement, upon a just, equitable, and honorable basis, of the entire question of the fishing rights of the two Governments and their respective citizens on the coasts of the United States and British North America. The fish-interests being intimately related to other general questions dependent upon contiguity and intercourse, consideration thereof, in all their equities, might also properly come within the purview of such a commission, and the fullest latitude of expression on both sides should be permitted.

The correspondence in relation to the fishing rights will be submitted.

The Arctic exploring steamer "Alert," which was generously given by her Majesty's Government to aid in the relief of the Greely expedition, was, after the successful attainment of that humane purpose, returned to Great Britain, in pursuance of the authority conferred by the act of March 3, 1855.

The inadequacy of the existing engagements for extradition between the United States and Great Britain has been long apparent. The tenth article of the treaty of 1842, one of the earliest compacts in this regard entered into by us, stipulated for surrender in respect of a limited number of offenses. Other crimes, no less inimical to the social welfare, should be embraced, and the procedure of extradition brought in harmony with present international practice. Negotiations with her Majesty's Government for an enlarged treaty of extradition have been pending since 1870, and I entertain strong hopes that a satisfactory result may be soon attained.

The frontier line between Alaska and British Columbia, as defined by the treaty of cession with Russia, follows the demarcation assigned in a prior treaty between Great Britain and Russia. Modern exploration discloses that this ancient boundary is impracticable as a geographical fact. In the unsettled condition of that region the question has lacked importance, but the discovery of mineral wealth in the territory the line is supposed to traverse admonishes that the time has come when an accurate knowledge of the boundary is needful to avert jurisdictional complications. I recommend, therefore, that provision be made for a preliminary reconnaissance by officers of the United States, to the end of acquiring more precise information on the subject. I have invited her Majesty's Government to consider with us the adoption of a more convenient line, to be established by meridian observations or by known geo-

graphical features, without the necessity of an expensive survey of the whole.

The late insurrectionary movements in Hayti having been quelled, the Government of that republic has made prompt provision for adjudicating the losses suffered by foreigners because of hostilities there, and the claims of certain citizens of the United States will be in this manner determined.

The long-pending claims of two citizens of the United States, Pelletier and Lazare, have been disposed of by arbitration, and an award in favor of each claimant has been made, which, by the terms of the engagement, is final. It remains for Congress to provide for the payment of the stipulated moiety of the expenses.

A question arose with Hayti during the past year, by reason of the exceptional treatment of an American citizen, Mr. Van Bokkelen, a resident of Port-au-Prince, who, on suit by creditors residing in the United States, was sentenced to imprisonment, and, under the operation of a Haytian statute, was denied relief secured to a native Haytian. This Government asserted his treaty right to equal treatment with natives of Hayti in all suits at law. Our contention was denied by the Haytian Government, which, however, while still professing to maintain the ground taken against Mr. Van Bokkelen's right, terminated the controversy by setting him at liberty without explanation.

An international conference to consider the means of arresting the spread of cholera and other epidemic diseases was held at Rome in May last, and adjourned to meet again on further notice. An expert delegate on behalf of the United States has attended its sessions and will submit a report.

Our relations with Mexico continue to be most cordial, as befits those of neighbors between whom the strongest ties of friendship and commercial intimacy exist, as the natural and growing consequence of our similarity of institutions and geographical propinquity.

The relocation of the boundary-line between the United States and Mexico westward of the Rio Grande, under the convention of July 29, 1852, has been unavoidably delayed; but I apprehend no difficulty in securing a prolongation of the period for its accomplishment.

The lately concluded commercial treaty with Mexico still awaits the stipulated legislation to carry its provisions into effect, for which one year's additional time has been secured by a supplementary article signed in February last and since ratified on both sides.

As this convention, so important to the commercial welfare of the two adjoining countries, has been constitutionally confirmed by the treaty-making branch, I express the hope that legislation needed to make it effective may not be long delayed.

The large influx of capital and enterprise to Mexico from the United States continues to aid in the development of the resources and in augmenting the material well-being of our sister republic. Lines of railway, penetrating to the heart and capital of the country, bring the two peoples into mutually beneficial intercourse, and enlarged facilities of transit add to profitable commerce, create new markets, and furnish avenues to otherwise isolated communities.

I have already adverted to the suggested construction of a ship-railway across the narrow formation of the territory of Mexico at Tehuantepec.

With the gradual recovery of Peru from the effects of her late disastrous conflict with Chili, and with the restoration of civil authority in that distracted country, it is hoped that pending war-claims of our citizens will be adjusted.

In conformity with notification given by the Government of Peru, the existing treaties of commerce and extradition between the United States and that country will terminate March 31, 1886.

Our good relationship with Russia continues.

An officer of the Navy, detailed for the purpose, is now on his way to Siberia, bearing the testimonials

voted by Congress to those who generously succored the survivors of the unfortunate "Jeannette" expedition.

It is gratifying to advert to the cordiality of our intercourse with Spain.

The long-pending claim of the owners of the ship "Masonic," for loss suffered through the admitted dereliction of the Spanish authorities in the Philippine Islands, has been adjusted by arbitration, and an indemnity awarded. The principle of arbitration in such cases, to which the United States have long and consistently adhered, thus receives a fresh and gratifying confirmation.

Other questions with Spain have been disposed of or are under diplomatic consideration with a view to just and honorable settlement.

The operation of the commercial agreement with Spain, of January 2—February 13, 1884, has been found inadequate to the commercial needs of the United States and the Spanish Antilles, and the terms of the agreement are subjected to conflicting interpretations in those islands.

Negotiations have been instituted at Madrid for a full treaty, not open to these objections, and in the line of the general policy touching the neighborly intercourse of proximate communities, to which I elsewhere advert, and aiming, moreover, at the removal of existing burdens and annoying restrictions; and although a satisfactory termination is promised, I am compelled to delay its announcement.

An international copyright conference was held at Berne in September, on the invitation of the Swiss Government. The envoy of the United States attended as a delegate, but refrained from committing this Government to the results, even by signing the recommedatory protocol adopted. The interesting and important subject of international copyright has been before you for several years. Action is certainly desirable to effect the object in view; and while there may be question as to the relative advantage of treating it by legislation or by specific treaty, the matured views of the Berne conference can not fail to aid your consideration on the subject.

The termination of the commercial treaty of 1862 between the United States and Turkey has been sought by that Government. While there is question as to the sufficiency of the notice of termination given, yet as the commercial rights of our citizens in Turkey come under the favored-nation guarantees of the prior treaty of 1830, and as equal treatment is admitted by the Porte, no inconvenience can result from the assent of this Government to the revision of the Ottoman tariffs, in which the treaty powers have been invited to join.

Questions concerning our citizens in Turkey may be affected by the Porte's non-acquiescence in the right of expatriation and by the imposition of religious tests as a condition of residence, in which this Government can not concur. The United States must hold, in their intercourse with every power, that the status of their citizens is to be respected and equal civil privileges accorded to them without regard to creed, and affected by no considerations save those growing out of domiciliary return to the land of original allegiance, or of unfulfilled personal obligations which may survive, under municipal laws, after such voluntary return.

The negotiation with Venezuela relative to the re-hearing of the awards of the Mixed Commission constituted under the treaty of 1865 was resumed in view of the recent acquiescence of the Venezuelan envoy in the principal point advanced by this Government, that the effects of the old treaty could only be set aside by the operation of a new convention. A result in substantial accord with the advisory suggestions contained in the joint resolution of March 3, 1883, has been agreed upon and will shortly be submitted to the Senate for ratification.

Under section 3659 of the Revised Statutes, all funds held in trust by the United States and the annual in-

terest accruing thereon when not otherwise required by treaty, are to be invested in stocks of the United States bearing a rate of interest not less than 5 per cent. per annum. There being now no procurable stocks paying so high a rate of interest, the letter of the statute is at present inapplicable, but its spirit is subserved by continuing to make investments of this nature in current stocks bearing the highest interest now paid. The statute, however, makes no provision for the disposal of such accretions. It being contrary to the general rule of this Government to allow interest on claims, I recommend the repeal of the provision in question, and the disposition, under a uniform rule, of the present accumulations from investment of trust funds.

The inadequacy of existing legislation touching citizenship and naturalization demands your consideration.

While recognizing the right of expatriation, no statutory provision exists providing means for renouncing citizenship by an American citizen, native-born or naturalized, nor for terminating and vacating an improper acquisition of citizenship. Even a fraudulent decree of naturalization can not now be canceled. The privilege and franchise of American citizenship should be granted with care, and extended to those only who intend in good faith to assume its duties and responsibilities when attaining its privileges and benefits; it should be withheld from those who merely go through the forms of naturalization with the intent of escaping the duties of their original allegiance without taking upon themselves those of their new status, or who may acquire the rights of American citizenship for no other than a hostile purpose toward their original governments. These evils have had many flagrant illustrations.

I regard with favor the suggestion put forth by one of my predecessors, that provision be made for a central bureau of record of the decrees of naturalization granted by the various courts throughout the United States now invested with that power.

The rights which spring from domicile in the United States, especially when coupled with a declaration of intention to become a citizen, are worthy of definition by statute. The stranger coming hither with intent to remain, establishing his residence in our midst, contributing to the general welfare, and by his voluntary act declaring his purpose to assume the responsibilities of citizenship, thereby gains an inchoate status which legislation may properly define. The laws of certain States and Territories admit a domiciled alien to the local franchise, conferring on him the rights of citizenship to a degree which places him in the anomalous position of being a citizen of a State, and yet not of the United States, within the purview of Federal and international law.

It is important within the scope of national legislation to define this right of alien domicile as distinguished from Federal naturalization.

The commercial relations of the United States with their immediate neighbors and with important areas of traffic near our shores, suggest especially liberal intercourse between them and us.

Following the treaty of 1883 with Mexico, which rested on the basis of a reciprocal exemption from customs duties, other similar treaties were initiated by my predecessor.

Recognizing the need of less obstructed traffic with Cuba and Porto Rico, and met by the desire of Spain to succor languishing interests in the Antilles, steps were taken to attain those ends by a treaty of commerce. A similar treaty was afterward signed by the Dominican Republic. Subsequently overtures were made by her Britannic Majesty's Government for a like mutual extension of commercial intercourse with the British West Indian and South American dependencies, but without result.

On taking office, I withdrew for re-examination the treaties signed with Spain and Santo Domingo, then pending before the Senate. The result has been to

satisfy me of the inexpediency of entering into engagements of this character not covering the entire traffic.

These treaties contemplated the surrender by the United States of large revenues for inadequate considerations. Upon sugar alone duties were surrendered to an amount far exceeding all the advantages offered in exchange. Even were it intended to relieve our consumers, it was evident that, so long as the exemption but partially covered our importation, such relief would be illusory. To relinquish a revenue so essential seemed highly improvident at a time when new and large drains upon the Treasury were contemplated. Moreover, embarrassing questions would have arisen under the favored-nation clauses of treaties with other nations.

As a further objection, it is evident that tariff regulation by treaty diminishes that independent control over its own revenues which is essential for the safety and welfare of any government. Emergency calling for an increase of taxation may at any time arise, and no engagement with a foreign power should exist to hamper the action of the Government.

By the fourteenth section of the shipping act, approved June 26, 1884, certain reductions and contingent exemptions from tonnage dues were made as to vessels entering ports of the United States from any foreign port in North and Central America, the West India Islands, the Bahamas and Bermudas, Mexico, and the Isthmus as far as Aspinwall and Panama. The Governments of Belgium, Denmark, Germany, Portugal, and Sweden and Norway have asserted, under the favored-nation clause in their treaties with the United States, a claim to like treatment in respect of vessels coming to the United States from their home ports. This Government, however, holds that the privileges granted by the act are purely geographical, inuring to any vessel of any foreign power that may choose to engage in traffic between this country and any port within the defined zone, and no warrant exists under the most-favored-nation clause for the extension of the privileges in question to vessels sailing to this country from ports outside the limitation of the act.

Undoubtedly the relations of commerce with our near neighbors, whose territories form so long a frontier line difficult to be guarded, and who find in our country and equally offer to us natural markets, demand special and considerate treatment. It rests with Congress to consider what legislative action may increase facilities of intercourse which contiguity makes natural and desirable.

I earnestly urge that Congress recast the appropriations for the maintenance of the diplomatic and consular service on a footing commensurate with the importance of our national interests. At every post where a representative is necessary, the salary should be so graded as to permit him to live with comfort. With the assignment of adequate salaries the so-called notarial extra-official fees, which our officers abroad are now permitted to treat as personal perquisites, should be done away with. Every act requiring the certification and seal of the officer should be taxable at schedule rates and the fee therefor returned to the Treasury. By restoring these revenues to the public use the consular service would be self-supporting, even with a liberal increase of the present low salaries.

In further prevention of abuses a system of consular inspection should be instituted.

The appointment of a limited number of secretaries of legation at large, to be assigned to duty wherever necessary, and in particular for temporary service at missions which for any cause may be without a head, should also be authorized.

I favor, also, authorization for the detail of officers of the regular service as military or naval attachés at legations.

Some foreign governments do not recognize the union of consular with diplomatic functions. Italy

and Venezuela will only receive the appointee in one of his two capacities; but this does not prevent the requirement of a bond and submission to the responsibilities of an office whose duties he can not discharge. The superadded title of consul-general should be abandoned at all missions.

I deem it expedient that a well-devised measure for the reorganization of the extra-territorial courts in Oriental countries should replace the present system, which labors under the disadvantage of combining judicial and executive functions in the same office.

In several Oriental countries generous offers have been made of premises for housing the legations of the United States. A grant of land for that purpose was made some years since by Japan, and has been referred to in the annual messages of my predecessor. The Siamese Government has made a gift to the United States of commodious quarters in Bangkok. In Corea, the late minister was permitted to purchase a building from the Government for legation use. In China, the premises rented for the legation are favored as to local charges. At Tangier, the house occupied by our representative has been for many years the property of this Government, having been given for that purpose in 1822 by the Sultan of Morocco. I approve the suggestion heretofore made, that, in view of the conditions of life and administration in the Eastern countries, the legation buildings in China, Japan, Corea, Siam, and perhaps Persia, should be owned and furnished by the Government, with a view to permanency and security. To this end I recommend that authority be given to accept the gifts adverted to in Japan and Siam, and to purchase in the other countries named, with provision for furniture and repairs. A considerable saving in rentals would result.

The World's Industrial Exposition, held at New Orleans last winter, with the assistance of the Federal Government, attracted a large number of foreign exhibits, and proved of great value in spreading among the concourse of visitors from Mexico and Central and South America a wider knowledge of the varied manufactures and productions of this country and their availability in exchange for the productions of those regions.

Past Congresses have had under consideration the advisability of abolishing the discrimination made by the tariff laws in favor of the works of American artists. The odium of the policy which subjects to a high rate of duty the paintings of foreign artists and exempts the productions of American artists residing abroad, and who receive gratuitously advantages and instruction, is visited upon our citizens engaged in art culture in Europe, and has caused them, with practical unanimity, to favor the abolition of such an ungracious distinction; and in their interest, and for other obvious reasons, I strongly recommend it.

The report of the Secretary of the Treasury fully exhibits the condition of the public finances and of the several branches of the Government connected with his department. The suggestions of the Secretary relating to the practical operations of this important department, and his recommendations in the direction of simplification and economy, particularly in the work of collecting customs duties, are especially urged upon the attention of Congress.

The ordinary receipts from all sources for the fiscal year ended June 30, 1885, were \$322,690,706.38. Of this sum \$181,471,939.34 was received from customs and \$112,498,725.54 from internal revenue. The total receipts, as given above, were \$24,829,163.54 less than those for the year ended June 30, 1884. This diminution embraces a falling off of \$13,595,550.42 in the receipts from customs and \$9,687,346.97 in the receipts from internal revenue.

The total ordinary expenditures of the Government for the fiscal year were \$260,226,935.50, leaving a surplus in the Treasury at the close of the year of \$63,463,771.27. This is \$40,929,854.32 less than the surplus reported at the close of the previous year.

The expenditures are classified as follow:

For civil expenses.....	\$23,826,942	11
For foreign intercourse.....	5,439,609	11
For Indians.....	6,559,494	63
For pensions.....	56,102,267	49
For the military, including river and harbor improvements and arsenals.....	42,670,578	47
For the navy, including vessels, machinery, and improvements of navy-yards.....	16,021,079	69
For interest on the public debt.....	51,862,256	47
For the District of Columbia.....	8,493,650	95
For miscellaneous expenditures, including public buildings, light-houses, and collecting the revenue.....	54,728,056	21

The amount paid on the public debt during the fiscal year ended June 30, 1885, was \$45,993,235.43; and there has been paid since that date and up to November 1, 1885, the sum of \$369,823, leaving the amount of the debt at the last-named date \$1,514,475,860.47. There was, however, at that time in the Treasury, applicable to the general purposes of the Government, the sum of \$66,818,292.38.

The total receipts for the current fiscal year, ending June 30, 1886, ascertained to October 1, 1885, and estimated for the remainder of the year, are \$315,000,000. The expenditures ascertained and estimated for the same time are \$245,000,000, leaving a surplus at the close of the year estimated at \$70,000,000.

The value of the exports from the United States to foreign countries during the last fiscal year was as follows:

Domestic merchandise.....	\$726,682,946	
Foreign merchandise.....	15,506,809	
 Total.....	 \$742,189,755	
Gold.....	8,477,892	
Silver.....	32,753,633	
 Total.....	 \$784,421,280	

Some of the principal exports, with their values and the percentage they respectively bear to the total exportation, are given as follow:

ARTICLES.	Value.	Percent- age.
Cotton and cotton manufactures.....	\$213,799,049	29.42
Breadstuffs.....	160,370,521	22.07
Provisions.....	107,332,456	14.77
Oils—mineral, vegetable, and animal.....	54,326,202	7.48
Tobacco and its manufactures.....	24,151,305	3.41
Wool and its manufactures.....	21,464,322	2.95

Our imports during the year were as follow:

Merchandise.....	\$579,580,053	80
Gold.....	26,691,696	00
Silver.....	16,550,627	00
 Total.....	 \$622,822,376	80

The following are given as prominent articles of imports during the year, with their values and the percentage they bear to the total importation:

ARTICLES.	Value.	Percent- age.
Sugar and molasses.....	\$76,738,718	13.29
Coffee.....	46,723,818	8.09
Wool and its manufactures.....	44,656,482	7.73
Silk and its manufactures.....	40,393,002	6.99
Chemicals, dyes, drugs, and medicines.....	35,070,516	6.07
Iron and steel and their manufactures.....	34,563,659	5.93
Flax, hemp, jute, and their manufactures.....	32,854,574	5.69
Cotton and its manufactures.....	28,152,001	4.88
Hides and skins other than fur-skins.....	20,586,443	3.56

Of the entire amount of duties collected 70 per cent. was collected from the following articles of import:

ARTICLES.	Value.	Percent- age.
Sugar and molasses.....	\$76,738,718	13.29
Wool and its manufactures.....	46,723,818	8.09
Silk and its manufactures.....	44,656,482	7.73
Iron and steel and their manufactures.....	40,393,002	6.99
Cotton manufactures.....	35,070,516	6.07
Flax, hemp, and jute, and their manufactures.....	32,854,574	5.69

The fact that our revenues are in excess of the actual needs of an economical administration of the Government justifies a reduction in the amount exacted from the people for its support. Our Government is but the means established by the will of a free people, by which certain principles are applied which they have adopted for their benefit and protection; and it is never better administered and its true spirit is never better observed than when the people's taxation for its support is scrupulously limited to the actual necessity of expenditure, and distributed according to a just and equitable plan.

The proposition with which we have to deal is the reduction of the revenue received by the Government, and indirectly paid by the people from customs duties. The question of free trade is not involved, nor is there now any occasion for the general discussion of the wisdom or expediency of a protective system.

Justice and fairness dictate that in any modification of our present laws relating to revenue the industries and interests which have been encouraged by such laws, and in which our citizens have large investments, should not be ruthlessly injured or destroyed. We should also deal with the subject in such manner as to protect the interests of American labor, which is the capital of our working-men; its stability and proper remuneration furnish the most justifiable pretext for a protective policy.

Within these limitations a certain reduction should be made in our customs revenue. The amount of such reduction having been determined, the inquiry follows, Where can it best be remitted and what articles can best be released from duty, in the interest of our citizens?

I think the reduction should be made in the revenue derived from a tax upon the imported necessities of life. We thus directly lessen the cost of living in every family of the land, and release to the people in every humble home a larger measure of the rewards of frugal industry.

During the year ended Nov. 1, 1885, 145 national banks were organized, with an aggregate capital of \$16,938,000, and circulating notes have been issued to them amounting to \$4,274,910. The whole number of these banks in existence on the day above mentioned was 2,727.

The very limited amount of circulating notes issued by our national banks compared with the amount the law permits them to issue, upon a deposit of bonds for their redemption, indicates that the volume of our circulating medium may be largely increased through this instrumentalities.

Nothing more important than the present condition of our currency and coinage can claim your attention.

Since February, 1878, the Government has, under the compulsory provisions of law, purchased silver bullion and coined the same at the rate of more than \$2,000,000 every month. By this process up to the present date 215,759,481 silver dollars have been coined.

A reasonable appreciation of a delegation of power to the General Government would limit its exercise without express restrictive words to the people's needs and the requirements of the public welfare.

Upon this theory, the authority to "coin money" given to Congress by the Constitution, if it permits the purchase by the Government of bullion for coinage in any event, does not justify such purchase and coinage to an extent beyond the amount needed for a sufficient circulating medium.

The desire to utilize the silver product of the country should not lead to a misuse or the perversion of this power.

The necessity for such an addition to the silver currency of the nation as is compelled by the silver-coinage act is negatived by the fact that up to the present time only about fifty millions of the silver dollars so coined have actually found their way into circulation, leaving more than one hundred and sixty-five millions in the possession of the Government, the custody of which has entailed a considerable expense for the

construction of vaults for its deposit. Against this latter amount there are outstanding silver certificates amounting to about \$93,000,000.

Every month two millions of gold in the public Treasury are paid out for two millions or more of silver dollars, to be added to the idle mass already accumulated.

If continued long enough, this operation will result in the substitution of silver for all the gold the Government owns applicable to its general purposes. It will not do to rely upon the customs receipts of the Government to make good this drain of gold, because the silver thus coined having been made legal tender for all debts and dues, public and private, at times during the last six months 55 per cent. of the receipts for duties have been in silver or silver certificates, while the average within that period has been 20 per cent. The proportion of silver and its certificates received by the Government will probably increase as time goes on, for the reason that the nearer the period approaches when it will be obliged to offer silver in payment of its obligations, the greater inducement there will be to hoard gold against depreciation in the value of silver, or for the purpose of speculating.

This hoarding of gold has already begun.

When the time comes that gold has been withdrawn from circulation, then will be apparent the difference between the real value of the silver dollar and a dollar in gold, and the two coins will part company. Gold, still the standard of value, and necessary in our dealings with other countries, will be at a premium over silver; banks which have substituted gold for the deposits of their customers may pay them with silver bought with such gold, thus making a handsome profit; rich speculators will sell their hoarded gold to their neighbors, who need it to liquidate their foreign debts, at a ruinous premium over silver, and the laboring men and women of the land, most defenseless of all, will find that the dollar received for the wage of their toil has sadly shrunk in its purchasing power. It may be said that the latter result will be but temporary, and that ultimately the price of labor will be adjusted to the change; but even if this takes place the wage-worker can not possibly gain, but must inevitably lose, since the price he is compelled to pay for his living will not only be measured in a coin heavily depreciated, and fluctuating and uncertain in its value, but this uncertainty in the value of the purchasing medium will be made the pretext for an advance in prices beyond that justified by actual depreciation.

The words uttered in 1834 by Daniel Webster in the Senate of the United States are true to-day: "The very man of all others who has the deepest interest in a sound currency, and who suffers most by mischievous legislation in money matters, is the man who earns his daily bread by his daily toil."

The most distinguished advocate of bimetallism, discussing our silver coinage, has lately written: "No American citizen's hand has yet felt the sensation of cheapness, either in receiving or expending the silver-act dollars."

And those who live by labor or legitimate trade never will feel that sensation of cheapness. However plenty silver dollars may become, they will not be distributed as gifts among the people; and if the laboring-man should receive four depreciated dollars where he now receives but two, he will pay in the depreciated coin more than double the price he now pays for all the necessities and comforts of life.

Those who do not fear any disastrous consequences arising from the continued compulsory coinage of silver as now directed by law, and who suppose that the addition to the currency of the country intended as its result will be a public benefit, are reminded that history demonstrates that the point is easily reached in the attempt to float at the same time two sorts of money of different excellence, when the better will cease to be in general circulation. The hoarding of gold, which has already taken place, indicates that

we shall not escape the usual experience in such cases. So if this silver coinage be continued we may reasonably expect that gold and its equivalent will abandon the field of circulation to silver alone. This, of course, must produce a severe contraction of our circulating medium, instead of adding to it.

It will not be disputed that any attempt on the part of the Government to cause the circulation of silver dollars worth eighty cents, side by side with gold dollars worth one hundred cents, even within the limit that legislation does not run counter to the laws of trade, to be successful must be seconded by the confidence of the people that both coins will retain the same purchasing power and be interchangeable at will. A special effort has been made by the Secretary of the Treasury to increase the amount of our silver coin in circulation; but the fact that a large share of the limited amount thus put out has soon returned to the public Treasury in payment of duties, leads to the belief that the people do not now desire to keep it in hand; and this, with the evident disposition to hoard gold, gives rise to the suspicion that there already exists a lack of confidence among the people touching our financial processes. There is certainly not enough silver now in circulation to cause uneasiness, and the whole amount coined and now on hand might after a time be absorbed by the people without apprehension; but it is the ceaseless stream that threatens to overflow the land which causes fear and uncertainty.

What has been thus far submitted upon this subject relates almost entirely to considerations of a home nature, unconnected with the bearing which the policies of other nations have upon the question. But it is perfectly apparent that a line of action in regard to our currency can not wisely be settled upon or persisted in without considering the attitude on the subject of other countries with whom we maintain intercourse through commerce, trade, and travel. An acknowledgement of this fact is found in the act by virtue of which our silver is compulsorily coined. It provides that "the President shall invite the governments of the countries composing the Latin Union, so called, and of such other European nations as he may deem advisable, to join the United States in a conference to adopt a common ratio between gold and silver for the purpose of establishing internationally the use of bimetallic money and securing fixity of relative value between these metals."

This conference absolutely failed, and a similar fate has awaited all subsequent efforts in the same direction. And still we continue our coinage of silver at a ratio different from that of any other nation. The most vital part of the silver-coining act remains inoperative and unexecuted, and, without an ally or friend, we battle upon the silver field in an illogical and losing contest.

To give full effect to the design of Congress on this subject I have made careful and earnest endeavor since the adjournment of the last Congress.

To this end I delegated a gentleman well instructed in fiscal science to proceed to the financial centers of Europe, and, in conjunction with our ministers to England, France, and Germany, to obtain a full knowledge of the attitude and intent of those governments in respect of the establishment of such an international ratio as would procure free coinage of both metals at the mints of those countries and our own. By my direction our consul-general at Paris has given close attention to the proceedings of the congress of the Latin Union, in order to indicate our interest in its objects and report its action.

It may be said, in brief, as the result of these efforts, that the attitude of the leading powers remains substantially unchanged since the monetary conference of 1881, nor is it to be questioned that the views of these governments are in each instance supported by the weight of public opinion.

The steps thus taken have therefore only more fully demonstrated the uselessness of further attempts

at present to arrive at any agreement on the subject with other nations.

In the mean time we are accumulating silver coin, based upon our own peculiar ratio, to such an extent, and assuming so heavy a burden to be provided for in any international negotiations, as will render us an undesirable party to any future monetary conference of nations.

It is a significant fact that four of the five countries composing the Latin Union mentioned in our coinage act, embarrassed with their silver currency, have just completed an agreement among themselves that no more silver shall be coined by their respective governments, and that such as has been already coined and in circulation shall be redeemed in gold by the country of its coinage. The resort to this expedient by these countries may well arrest the attention of those who suppose that we can succeed without shock or injury in the attempt to circulate upon its merits all the silver we may coin under the provisions of our silver-coinage act.

The condition in which our treasury may be placed by a persistence in our present course is a matter of concern to every patriotic citizen who does not desire his Government to pay in silver such of its obligations as should be paid in gold. Nor should our condition be such as to oblige us, in a prudent management of our affairs, to discontinue the calling in and payment of interest-bearing obligations which we have the right now to discharge, and thus avoid the payment of further interest thereon.

The so-called debtor class, for whose benefit the continued compulsory coinage of silver is insisted upon, are not dishonest because they are in debt; and they should not be suspected of a desire to jeopardize the financial safety of the country in order that they may cancel their present debts by paying the same in depreciated dollars. Nor should it be forgotten that it is not the rich nor the money-lender alone that must submit to such a readjustment, enforced by the Government and their debtors. The pittance of the widow and the orphan, and the incomes of helpless beneficiaries of all kinds, would be disastrously reduced. The depositors in savings-banks and in other institutions which hold in trust the savings of the poor, when their little accumulations are scaled down to meet the new order of things, would, in their distress, painfully realize the delusion of the promise made to them that plentiful money would improve their condition.

We have now on hand all the silver dollars necessary to supply the present needs of the people, and to satisfy those who, from sentiment, wish to see them in circulation; and if their coinage is suspended they can be readily obtained by all who desire them. If the need of more is at any time apparent, their coinage may be renewed.

That disaster has not already overtaken us furnishes no proof that danger does not wait upon a continuation of the present silver coinage. We have been saved by the most careful management and unusual expedients, by a combination of fortunate conditions, and by a confident expectation that the course of the Government in regard to silver coinage would be speedily changed by the action of Congress.

Prosperity hesitates upon our threshold because of the dangers and uncertainties surrounding this question. Capital timidly shrinks from trade, and investors are unwilling to take the chance of the questionable shape in which their money will be returned to them, while enterprise halts at a risk against which care and sagacious management do not protect.

As a necessary consequence, labor lacks employment, and suffering and distress are visited upon a portion of our fellow-citizens especially entitled to the careful consideration of those charged with the duties of legislation. No interest appeals to us so strongly for a safe and stable currency as the vast army of the unemployed.

I recommend the suspension of the compulsory coin-

age of silver dollars, directed by the law passed in February, 1878.

The steamboat-inspection service, on the 30th day of June, 1885, was composed of one hundred and forty persons, including officers, clerks, and messengers. The expenses of the service over the receipts were \$183,822.22 during the fiscal year. The special inspection of foreign steam-vessels, organized under a law passed in 1882, was maintained during the year at an expense of \$36,641.63. Since the close of the fiscal year reductions have been made in the force employed which will result in a saving during the current year of \$17,000 without affecting the efficiency of the service.

The Supervising Surgeon-General reports that during the fiscal year 41,714 patients have received relief through the Marine-Hospital Service, of whom 12,803 were treated in hospitals and 28,911 at the dispensaries.

Active and effective efforts have been made, through the medium of this service, to protect the country against an invasion of cholera, which has prevailed in Spain and France, and the small-pox, which recently broke out in Canada.

The most gratifying results have attended the operations of the Life-Saving Service during the last fiscal year. The observance of the provision of law requiring the appointment of the force employed in this service to be made "solely with reference to their fitness, and without reference to their political or party affiliation," has secured the result which may confidently be expected in any branch of public employment where such a rule is applied. As a consequence, this service is composed of men well qualified for the performance of their dangerous and exceptionally important duties.

The number of stations in commission at the close of the year was 203. The number of disasters to vessels and craft of all kinds within their field of action was 371. The number of persons endangered in such disasters was 2,439, of whom 2,428 were saved and only 11 lost. Other lives which were imperiled, though not by disasters to shipping, were also rescued, and a large amount of property was saved through the aid of this service. The cost of its maintenance during the year was \$828,474.43.

The work of the Coast and Geodetic Survey was, during the last fiscal year, carried on within the boundaries and off the coasts of thirty-two States, two Territories, and the District of Columbia. In July last certain irregularities were found to exist in the management of this bureau, which led to a prompt investigation of its methods. The abuses which were brought to light by this examination, and the reckless disregard of duty and the interests of the Government developed on the part of some of those connected with the service, made a change of superintendency and a few of its other officers necessary. Since the bureau has been in new hands an introduction of economies and the application of business methods have produced an important saving to the Government and a promise of more useful results.

This service has never been regulated by anything but the most indefinite legal enactments and the most unsatisfactory rules. It was many years ago sanctioned apparently for a purpose regarded as temporary, and related to a survey of our coast. Having gained a place in the appropriations made by Congress, it has gradually taken to itself powers and objects not contemplated in its creation, and extended its operations, until it sadly needs legislative attention.

So far as a further survey of our coast is concerned, there seems to be a propriety in transferring that work to the Navy Department. The other duties now in charge of this establishment, if they can not be profitably attached to some existing department or other bureau, should be prosecuted under a law exactly defining their scope and purpose, and with a careful discrimination between the scientific inquiries which may properly be assumed by the Government and those

which should be undertaken by State authority or by individual enterprise.

It is hoped that the report of the congressional committee heretofore appointed to investigate this and other like matters, will aid in the accomplishment of proper legislation on this subject.

The report of the Secretary of War is herewith submitted. The attention of Congress is invited to the detailed account which it contains of the administration of his department, and his recommendations and suggestions for the improvement of the service.

The Army consisted, at the date of the last consolidated returns, of 2,154 officers and 24,705 enlisted men.

The expenses of the departments for the fiscal year ended June 30, 1835, including \$13,164,394.60 for public works and river and harbor improvements, were \$45,850,999.54.

Besides the troops which were dispatched in pursuit of the small band of Indians who left their reservation in Arizona and committed murders and outrages, two regiments of cavalry and one of infantry were sent last July to the Indian Territory to prevent an outbreak which seemed imminent. They remained to aid if necessary in the expulsion of intruders upon the reservation, who seemed to have caused the discontent among the Indians, but the Executive proclamation warning them to remove was complied with without their interference.

Troops were also sent to Rock Springs in Wyoming Territory, after the massacre of Chinese there to prevent further disturbance, and afterward to Seattle, in Washington Territory, to avert a threatened attack upon Chinese laborers and domestic violence there. In both cases, the mere presence of the troops had the desired effect.

It appears that the number of desertions have diminished, but that during the last fiscal year they numbered 2,927; and one instance is given by the Lieutenant-General of six desertions by the same recruit. I am convinced that this number of desertions can be much diminished by better discipline and treatment; but the punishment should be increased for repeated offenses.

These desertions might also be reduced by lessening the term of first enlistments, thus allowing a discontented recruit to contemplate a nearer discharge, and the Army a profitable riddance. After one term of service a re-enlistment would be quite apt to secure a contented recruit and a good soldier.

The Acting Judge-Advocate-General reports that the number of trials by general courts-martial during the year was 2,328, and that 11,851 trials took place before garrison and regimental courts-martial. The suggestion that probably more than half the Army have been tried for offenses great and small, in one year, may well arrest attention. Of course, many of these trials before garrison and regimental courts-martial were for offenses almost frivolous; and there should, I think, be a way devised to dispose of these in a more summary and less inconvenient manner than by court-martial.

If some of the proceedings of courts-martial which I have had occasion to examine present the ideas of justice which generally prevail in these tribunals, I am satisfied that they should be much reformed, if the honor and honesty of the Army and Navy are by their instrumentality to be vindicated and protected.

The board on fortifications or other defenses, appointed in pursuance of the provisions of the act of Congress approved March 3, 1835, will in a short time present their report; and it is hoped that this may greatly aid the legislation so necessary to remedy the present defenseless condition of our sea-coasts.

The work of the Signal Service has been prosecuted during the last year, with results of increasing benefit to the country. The field of instruction has been enlarged with a view of adding to its usefulness. The number of stations in operation June 30, 1835, was 489. Telegraphic reports are received daily from

160 stations. Reports are also received from 25 Canadian stations, 375 volunteer observers, 52 army-surgeons at military posts, and 333 foreign stations. The expense of the service during the fiscal year after deducting receipts from military telegraph lines was \$792,592.97. In view of the fact referred to by the Secretary of War, that the work of this service ordinarily is of a scientific nature, and the further fact that it is assuming larger proportions constantly, and becoming more and more unsuited to the fixed rules which must govern the Army, I am inclined to agree with him in the opinion that it should be separately established. If this is done, the scope and extent of its operations should, as nearly as possible, be definitely prescribed by law, and always capable of exact ascertainment.

The Military Academy at West Point is reported as being in a high state of efficiency, and well equipped for the satisfactory accomplishment of the purposes of its maintenance.

The fact that the class which graduates next year is an unusually large one, has constrained me to decline to make appointments to second-lieutenancies in the Army from civil life, so that such vacancies as exist in these places may be reserved for such graduates; and yet it is not probable that there will be enough vacancies to provide positions for them all when they leave the military school. Under the prevailing law and usage those not thus assigned to duty never actively enter the military service. It is suggested that the law on this subject be changed, so that such of these young men as are not at once assigned to duty after graduation may be retained as second-lieutenants in the Army if they desire it, subject to assignment when opportunity occurs, and under proper rules as to priority of selection.

The expenditures on account of the Military Academy for the last fiscal year, exclusive of the sum taken for its purposes from appropriations for the support of the Army, were \$290,712.07.

The act approved March 3, 1835, designed to compensate officers and enlisted men for loss of private property while in the service of the United States, is so indefinite in its terms, and apparently admits so many claims the adjustment of which could not have been contemplated, that if it is to remain upon the statute-book it needs amendment.

There should be a general law of Congress prohibiting the construction of bridges over navigable waters in such manner as to obstruct navigation, with provisions for preventing the same. It seems that under existing statutes the Government can not intervene to prevent such a construction when entered upon without its consent, though when such consent is asked and granted upon condition, the authority to insist upon such condition is clear. Thus it is represented that while the officers of the Government are with great care guarding against the obstruction of navigation by a bridge across the Mississippi River at Saint Paul, a large pier for a bridge has been built just below this place directly in the navigable channel of the river. If such things are to be permitted, a strong argument is presented against the appropriation of large sums of money to improve the navigation of this and other important highways of commerce.

The report of the Secretary of the Navy gives a history of the operations of his department and the present condition of the work committed to his charge.

He details in full the course pursued by him to protect the rights of the Government in respect of certain vessels unfinished at the time of his accession to office, and also concerning the dispatch-boat *Dolphin*, claimed to be completed and awaiting the acceptance of the department. No one can fail to see, from recitals contained in this report, that only the application of business principles has been insisted upon in the treatment of these subjects, and that whatever controversy has arisen was caused by the exaction on the part of the department of contract obligations as

they were legally construed. In the case of the Dolphine, with entire justice to the contractor, an agreement has been entered into providing for the ascertainment by a judicial inquiry of the complete or partial compliance with the contract in her construction, and further providing for the assessment of any damages to which the Government may be entitled on account of a partial failure to perform such contract, or the payment of the sum still remaining unpaid upon her price, in case a full performance is adjudged.

The contractor, by reason of his failure in business, being unable to complete the other three vessels, they were taken possession of by the Government in their unfinished state, under a clause in the contract permitting such a course, and are now in process of completion in the yard of the contractor, but under the supervision of the Navy Department.

Congress at its last session authorized the construction of two additional new cruisers and two gunboats, at a cost not exceeding in the aggregate \$2,995,000. The appropriation for this purpose having become available on the 1st day of July last, steps were at once taken for the procurement of such plans for the construction of these vessels as would be likely to insure their usefulness when completed. These are of the utmost importance, considering the constant advance in the art of building vessels of this character, and the time is not lost which is spent in their careful consideration and selection.

All must admit the importance of an effective navy to a nation like ours, having such an extended sea-coast to protect. And yet we have not a single vessel of war that could keep the seas against a first-class vessel of any important power. Such a condition ought not longer to continue. The nation that can not resist aggression is constantly exposed to it. Its foreign policy is of necessity weak, and its negotiations are conducted with disadvantage, because it is not in condition to enforce the terms dictated by its sense of right and justice.

Inspired, as I am, by the hope, shared by all patriotic citizens, that the day is not very far distant when our navy will be such as befits our standing among the nations of the earth, and rejoiced at every step that leads in the direction of such a consummation, I deem it my duty to especially direct the attention of Congress to the close of the report of the Secretary of the Navy, in which the humiliating weakness of the present organization of his department is exhibited, and the startling abuses and waste of its present methods are exposed. The conviction is forced upon us, with the certainty of mathematical demonstration, that before we proceed further in the restoration of a navy we need a thoroughly reorganized Navy Department. The fact that within seventeen years more than \$75,000,000 have been spent in the construction, repair, equipment, and armament of vessels, and the further fact that, instead of an effective and creditable fleet, we have only the discontent and apprehension of a nation undefended by war-vessels, added to the disclosures now made, do not permit us to doubt that every attempt to revive our navy has thus far, for the most part, been misdirected, and all our efforts in that direction have been little better than blind gropings and expensive, aimless follies.

Unquestionably, if we are content with the maintenance of a Navy Department simply as a shabby ornament to the Government, a constant watchfulness may prevent some of the scandal and abuse which have found their way into our present organization, and its incurable waste may be reduced to a minimum. But if we desire to build ships for present usefulness, instead of naval reminders of the days that are past, we must have a department organized for the work, supplied with all the talent and ingenuity our country affords, prepared to take advantage of the experience of other nations; systematized so that all effort shall unite and lead in one direction, and fully imbued with the conviction that war-ves-

sels, though new, are useless unless they combine all that the ingenuity of man has up to this day brought forth relating to their construction.

I earnestly commend the portion of the Secretary's report devoted to this subject to the attention of Congress, in the hope that his suggestions touching the reorganization of his department may be adopted as the first step toward the reconstruction of our navy.

The affairs of the postal service are exhibited by the report of the Postmaster-General, which will be laid before you.

The postal revenue, whose ratio of gain upon the rising prosperity of 1882 and 1883 outstripped the increasing expenses of our growing service, was checked by the reduction in the rate of letter-postage, which took effect with the beginning of October in the latter year; and it diminished during the two past fiscal years \$2,790,000, in about the proportion of \$2,270,000 in 1884 to \$520,000 in 1885. Natural growth and development have meantime increased expenditure, resulting in a deficiency in the revenue to meet the expenses of the department of five and a quarter million dollars for the year 1884, and eight and a third million in the last fiscal year. The anticipated and natural revival of the revenue has been oppressed and retarded by the unfavorable business condition of the country, of which the postal service is a faithful indicator. The gratifying fact is shown, however, by the report, that our returning prosperity is marked by a gain of \$380,000 in the revenue of the latter half of the last year over the corresponding period of the preceding year.

The change in the weight of first-class matter which may be carried for a single rate of postage, from a half-ounce to an ounce, and the reduction by one half of the rate of newspaper-postage, which, under recent legislation, began with the present year, will operate to restrain the augmentation of receipts which otherwise might have been expected, to such a degree that the scale of expense may gain upon the revenue and cause an increased deficiency to be shown at its close. Yet, after no long period of reawakened prosperity, by proper economy, it is confidently anticipated that even the present low rates, now as favorable as any country affords, will be adequate to sustain the cost of the service.

The operation of the Post-Office Department is for the convenience and benefit of the people; and the method by which they pay the charges of this useful arm of their public service, so that it be just and impartial, is of less importance to them than the economical expenditure of the means they provide for its maintenance and the due improvement of its agencies, so that they may enjoy its highest usefulness.

A proper attention has been directed to the prevention of waste or extravagance, and good results appear from the report to have already been accomplished.

I approve the recommendation of the Postmaster-General to reduce the charges on domestic money-orders of five dollars and less from eight to five cents. This change will materially aid those of our people who most of all avail themselves of this instrumentality, but to whom the element of cheapness is of the greatest importance. With this reduction the system would still remain self-supporting.

The free-delivery system has been extended to nineteen additional cities during the year, and one hundred and seventy-eight now enjoy its conveniences. Experience has commended it to those who enjoy its benefits, and further enlargement of its facilities is due to other communities to which it is adapted. In the cities where it has been established, taken together, the local postage exceeds its maintenance by nearly \$1,300,000. The limit to which this system is now confined by law has been nearly reached, and the reasons given justify its extension, which is proposed.

It was decided, with my approbation, after a sufficient examination, to be inexpedient for the Post-

Office Department to contract for carrying our foreign mails under the additional authority given by the last Congress. The amount limited was inadequate to pay all within the purview of the law the full rate of fifty cents per mile, and it would have been unjust and unwise to have given it to some and denied it to others. Nor could contracts have been let under the law to all at a rate to have brought the aggregate within the appropriation, without such practical pre-arrangement of terms as would have violated it.

The rate of sea and inland postage, which was professed under another statute, clearly appears to be a fair compensation for the desired service, being three times the price necessary to secure transportation by other vessels upon any route, and much beyond the charges made to private persons for services not less burdensome.

Some of the steamship companies, upon the refusal of the Postmaster-General to attempt, by the means provided, the distribution of the sum appropriated as an extra compensation, withdrew the services of their vessels and thereby occasioned slight inconvenience, though no considerable injury, the mails having been dispatched by other means.

Whatever may be thought of the policy of subsidizing any line of public conveyance or travel, I am satisfied that it should not be done under cover of an expenditure incident to the administration of a department, nor should there be any uncertainty as to the recipients of the subsidy, or any discretion left to an executive officer as to its distribution. If such gifts of the public money are to be made for the purpose of aiding any enterprise, in the supposed interest of the public, I can not but think that the amount to be paid, and the beneficiary, might better be determined by Congress than in any other way.

The international congress of delegates from the Postal-Union countries convened at Lisbon, in Portugal, in February last, and after a session of some weeks the delegates signed a convention amendatory of the present Postal-Union Convention in some particulars designed to advance its purposes. This additional act has had my approval, and will be laid before you with the departmental report.

I approve the recommendation of the Postmaster-General that another assistant be provided for his department. I invite your consideration to the several other recommendations contained in his report.

The report of the Attorney-General contains a history of the conduct of the Department of Justice during the last year, and a number of valuable suggestions as to needed legislation; and I invite your careful attention to the same.

The condition of business in the courts of the United States is such that there seems to be an imperative necessity for remedial legislation on the subject. Some of these courts are so overburdened with pending causes that the delays in determining litigation amount often to a denial of justice. Among the plans suggested for relief is one submitted by the Attorney-General. Its main features are: The transfer of all the original jurisdiction of the circuit courts to the district courts, and an increase of judges for the latter where necessary; an addition of judges to the circuit courts, and constituting them exclusively courts of appeal, and reasonably limiting appeals thereto; further restrictions of the right to remove causes from the State to Federal courts; permitting appeals to the Supreme Court from the courts of the District of Columbia and the Territories only in the same cases as they are allowed from State courts, and guarding against an unnecessary number of appeals from the circuit courts.

I approve the plan thus outlined, and recommend the legislation necessary for its application to our judicial system.

The present mode of compensating United States marshals and district attorneys should, in my opinion, be changed. They are allowed to charge against the Government certain fees for services, their income

being measured by the amount of such fees within a fixed limit as to their annual aggregate. This is a direct inducement for them to make their fees in criminal cases as large as possible in an effort to reach the maximum sum permitted. As an entirely natural consequence, unscrupulous marshals are found encouraging frivolous prosecutions, arresting people on petty charges of crime, and transporting them to distant places for examination and trial, for the purpose of earning mileage and other fees; and district attorneys uselessly attend criminal examinations far from their places of residence, for the express purpose of swelling their accounts against the Government. The actual expenses incurred in these transactions are also charged against the Government.

Thus the rights and freedom of our citizens are outraged, and public expenditures increased, for the purpose of furnishing public officers pretexts for increasing the measure of their compensation.

I think marshals and district attorneys should be paid salaries, adjusted by a rule which will make them commensurate with services fairly rendered.

In connection with this subject I desire to suggest the advisability, if it be found not obnoxious to constitutional objection, of investing United States commissioners with the power to try and determine certain violations of law within the grade of misdemeanors. Such trials might be made to depend upon the option of the accused. The multiplication of small and technical offenses, especially under the provisions of our internal-revenue law, render some change in our present system very desirable, in the interests of humanity as well as economy.

The district courts are now crowded with petty prosecutions, involving a punishment, in cases of conviction, of only a slight fine, while the parties accused are harassed by an enforced attendance upon courts held hundreds of miles from their homes. If poor and friendless they are obliged to remain in jail during months, perhaps, that elapse before a session of the court is held, and are finally brought to trial surrounded by strangers and with but little real opportunity for defense. In the mean time frequently the marshal has charged against the Government his fees for an arrest, the transportation of the accused and the expense of the same, and for summoning witnesses before a commissioner, a grand jury, and a court; the witnesses have been paid from the public funds large fees and traveling expenses, and the commissioner and district attorney have also made their charges against the Government.

This abuse in the administration of our criminal law should be remedied; and if the plan above suggested is not practicable, some other should be devised.

The report of the Secretary of the Interior, containing an account of the operations of this important department and much interesting information, will be submitted for your consideration.

The most intricate and difficult subject in charge of this department is the treatment and management of the Indians. I am satisfied that some progress may be noted in their condition as a result of a prudent administration of the present laws and regulations for their control.

But it is submitted that there is lack of a fixed purpose or policy on this subject, which should be supplied. It is useless to dilate upon the wrongs of the Indians, and as useless to indulge in the heartless belief that because their wrongs are revenged in their own atrocious manner therefore they should be exterminated.

They are within the care of our Government, and their rights are, or should be, protected from invasion by the most solemn obligations. They are properly enough called the wards of the Government; and it should be borne in mind that this guardianship involves, on our part, efforts for the improvement of their condition and the enforcement of their rights. There seems to be general concurrence in the proposition that the ultimate object of their treatment

should be their civilization and citizenship. Fitted by these to keep pace in the march of progress with the advanced civilization about them, they will readily assimilate with the mass of our population, assuming the responsibilities and receiving the protection incident to this condition.

The difficulty appears to be in the selection of the means to be at present employed toward the attainment of this result.

Our Indian population, exclusive of those in Alaska, is reported as numbering 280,000, nearly all being located on lands set apart for their use and occupation, aggregating over 134,000,000 acres. These lands are included in the boundaries of one hundred and seventy-one reservations of different dimensions scattered in twenty-one States and Territories, presenting great variations in climate and in the kind and quality of their soils. Among the Indians upon these several reservations there exists the most marked differences in natural traits and disposition and in their progress toward civilization. While some are lazy, vicious, and stupid, others are industrious, peaceful, and intelligent; while a portion of them are self-supporting and independent, and have so far advanced in civilization that they make their own laws, administered through officers of their own choice, and educate their children in schools of their own establishment and maintenance, others still retain, in squalor and dependence, almost the savagery of their natural state.

In dealing with this question, the desires manifested by the Indians should not be ignored. Here, again, we find a great diversity. With some the tribal relation is cherished with the utmost tenacity, while its hold upon others is considerably relaxed; the love of home is strong with all, and yet there are those whose attachment to a particular locality is by no means unyielding; the ownership of their lands in severity is much desired by some, while by others, and sometimes among the most civilized, such a distribution would be bitterly opposed.

The variation of their wants, growing out of and connected with the character of their several locations, should be regarded. Some are upon reservations most fit for grazing, but without flocks or herds; and some, on arable land, have no agricultural implements. While some of the reservations are double the size necessary to maintain the number of Indians now upon them, in a few cases, perhaps, they should be enlarged.

Add to all this the difference in the administration of the agencies. While the same duties are devolved upon all, the disposition of the agents and the manner of their contact with the Indians have much to do with their condition and welfare. The agent who perfunctorily performs his duty and slothfully neglects all opportunity to advance their moral and physical improvement, and fails to inspire them with a desire for better things, will accomplish nothing in the direction of their civilization; while he who feels the burden of an important trust, and has an interest in his work, will, by consistent example, firm yet considerate treatment, and well-directed aid and encouragement, constantly lead those under his charge toward the light of their enfranchisement.

The history of all the progress which has been made in the civilization of the Indian I think will disclose the fact that the beginning has been religious teaching, followed by or accompanying secular education. While the self-sacrificing and pious men and women who have aided in this good work by their independent endeavor have for their reward the beneficent results of their labor and consciousness of Christian duty well performed, their valuable services should be fully acknowledged by all who, under the law, are charged with the control and management of our Indian wards.

What has been said indicates that, in the present condition of the Indians, no attempt should be made to apply a fixed and unyielding plan of action to their varied and varying needs and circumstances.

The Indian Bureau, burdened as it is with their general oversight and with the details of the establishment, can hardly possess itself of the minute phases of the particular cases needing treatment; and thus to those already established for the care of the Indians suggests itself.

I recommend the passage of a law authorizing the appointment of six commissioners, three of whom shall be detailed from the Army, to be charged with the duty of a careful inspection, from time to time, of all the Indians upon our reservations or subject to the care and control of the Government, with a view of discovering their exact condition and needs, and determining what steps shall be taken on behalf of the Government to improve their situation in the direction of their self-support and complete civilization; that they may ascertain from such inspection what, if any, of the reservations may be reduced in area, and in such cases what part not needed for Indian occupation may be purchased by the Government from the Indians and disposed of for their benefit; what, if any, Indians may with their consent be removed to other reservations, with a view of their concentration and the sale on their behalf of their abandoned reservations; what Indian lands now held in common should be allotted in severality; in what manner and to what extent the Indians upon the reservations can be placed under the protection of our laws and subjected to their penalties; and which, if any, Indians should be invested with the rights of citizenship. The powers and functions of the commissioners in regard to these subjects should be clearly defined, though they should, in conjunction with the Secretary of the Interior, be given all the authority to deal definitely with the questions presented deemed safe and consistent.

They should also be charged with the duty of ascertaining the Indians who might properly be furnished with implements of agriculture, and of what kind; in what cases the support of the Government should be withdrawn; where the present plan of distributing Indian supplies should be changed; where schools may be established and where discontinued; the conduct, methods, and fitness of agents in charge of reservations; the extent to which such reservations are occupied or intruded upon by unauthorized persons; and generally all matters related to the welfare and improvement of the Indian.

They should advise with the Secretary of the Interior concerning these matters of detail in management, and he should be given power to deal with them fully if he is not now invested with such power.

This plan contemplates the selection of persons for commissioners who are interested in the Indian question, and who have practical ideas upon the subject of their treatment.

The expense of the Indian Bureau during the last fiscal year was more than six and a half million dollars. I believe much of this expenditure might be saved under the plan proposed; that its economical effects would be increased with its continuance; that the safety of our frontier settlers would be subserved under its operation; and that the nation would be saved through its results from the imputation of inhumanity, injustice, and mismanagement.

In order to carry out the policy of allotment of Indian lands in severality when deemed expedient, it will be necessary to have surveys completed of the reservations, and I hope that provision will be made for the prosecution of this work.

In May of the present year a small portion of the Chiricahua Apaches on the White Mountain reservation, in Arizona, left the reservation and committed a number of murders and depredations upon settlers in that neighborhood. Though prompt and energetic action was taken by the military, the renegades eluded capture and escaped into Mexico. The formation of the country through which these Indians passed, their thorough acquaintance with the same, the speed of their escape, and the manner in which they scattered

and concealed themselves among the mountains near the scene of their outrages, put our soldiers at a great disadvantage in their efforts to capture them, though the expectation is still entertained that they will be ultimately taken and punished for their crimes.

The threatening and disorderly conduct of the Cheyennes in the Indian Territory early last summer caused considerable alarm and uneasiness. Investigation proved that their threatening attitude was due in a great measure to the occupation of the land of their reservation by immense herds of cattle, which their owners claimed were rightfully there under certain leases made by the Indians. Such occupation appearing upon examination to be unlawful notwithstanding these leases, the intruders were ordered to remove with their cattle from the lands of the Indians by Executive proclamation. The enforcement of this proclamation had the effect of restoring peace and order among the Indians, and they are now quiet and well behaved.

By an Executive order issued on February 27, 1885, by my predecessor, a portion of the tract of country in the territory known as the Old Winnebago and Crow Creek reservations was directed to be restored to the public domain and opened to settlement under the land-laws of the United States, and a large number of persons entered upon those lands. This action alarmed the Sioux Indians, who claimed the territory as belonging to their reservation under the treaty of 1868. This claim was determined, after careful investigation to be well founded; and consequently the Executive order referred to was, by proclamation of April 17, 1885, declared to be inoperative and of no effect, and all persons upon the land were warned to leave. This warning has been substantially complied with.

The public domain had its origin in cessions of land by the States to the General Government. The first cession was made by the State of New York, and the largest, which in area exceeded all the others, by the State of Virginia. The territory, the proprietorship of which became thus vested in the General Government, extended from the western line of Pennsylvania to the Mississippi river. These patriotic donations of the States were encumbered with no condition, except that they should be held and used "for the common benefit of the United States." By purchase, with the common fund of all the people, additions were made to this domain until it extended to the northern line of Mexico, the Pacific Ocean, and the Polar Sea. The original trust, "for the common benefit of the United States," attached to all. In the execution of that trust the policy of many homes, rather than large estates, was adopted by the Government. That these might be easily obtained, and be the abode of security and contentment, the laws for their acquisition were few, easily understood, and general in their character. But the pressure of local interests, combined with a speculative spirit, have in many instances procured the passage of laws which marred the harmony of the general plan and encumbered the system with a multitude of general and special enactments, which render the land laws complicated, subject the titles to uncertainty, and the purchasers often to oppression and wrong. Laws which were intended for the "common benefit" have been perverted so that large quantities of land are vesting in single ownerships. From the multitude and character of the laws this consequence seems incapable of correction by mere administration.

It is not for the "common benefit of the United States" that a large area of the public lands should be acquired, directly or through fraud, in the hands of a single individual. The nation's strength is in the people. The nation's prosperity is in their prosperity. The nation's glory is in the equality of her justice. The nation's perpetuity is in the patriotism of all her people. Hence, as far as practicable, the plan adopted in the disposal of the public lands should have in view the original policy, which encouraged many purchasers of these lands for homes

and discouraged the massing of large areas. Exclusive of Alaska, about three fifths of the national domain has been sold or subjected to contract or grant. Of the remaining two fifths a considerable portion is either mountain or desert. A rapidly increasing population creates a growing demand for homes, and the accumulation of wealth inspires an eager competition to obtain the public land for speculative purposes. In the future this collision of interests will be more marked than in the past, and the execution of the nation's trust in behalf of our settlers will be more difficult. I therefore recommend to your attention the recommendations contained in the report of the Secretary of the Interior with reference to the repeal and modification of certain of our land-laws.

The nation has made princely grants and subsidies to a system of railroads projected as great national highways to connect the Pacific States with the East. It has been charged that these donations from the people have been diverted to private gain and corrupt uses, and thus public indignation has been aroused and suspicion engendered. Our great nation does not begrudge its generosity, but it abhors peculation and fraud; and the favorable regard of our people for the great corporations to which these grants were made can only be revived by a restoration of confidence, to be secured by their constant, unequivocal, and clearly manifested integrity. A faithful application of the undiminished proceeds of the grants to the construction and perfecting of their roads, an honest discharge of their obligations, and entire justice to all the people in the enjoyment of their rights on these highways of travel, is all the public asks, and it will be content with no less. To secure these things should be the common purpose of the officers of the Government, as well as of the corporations. With this accomplishment, prosperity would be permanently secured to the roads, and national pride would take the place of national complaint.

It appears from the report of the Commissioner of Pensions that there were on the 1st day of July, 1885, 845,128 persons borne upon the pension-rolls, who were classified as follows: Army invalids, 241,456; widows, minor children, and dependent relatives of deceased soldiers, 78,841; Navy invalids, 2,745; Navy widows, minor children, and dependents, 1,926; survivors of the War of 1812, 2,945; and widows of those who served in that war, 17,212. About one man in ten of all those who enlisted in the late war are reported as receiving pensions, exclusive of the dependents of deceased soldiers. On the 1st of July, 1875, the number of pensioners was 234,821, and the increase within the ten years next thereafter was 110,304.

While there is no expenditure of the public funds which the people more cheerfully approve than that made in recognition of the services of our soldiers, living and dead, the sentiment underlying the subject should not be vitiated by the introduction of any fraudulent practices. Therefore it is fully as important that the rolls should be cleansed of all those who by fraud have secured a place thereon as that meritorious claims should be speedily examined and adjusted. The reforms in the methods of doing the business of this bureau which have lately been inaugurated promise better results in both these directions.

The operations of the Patent-Office demonstrate the activity of the inventive genius of the country. For the year ended June 30, 1885, the applications for patents, including reissues, and for the registration of trade-marks and labels, numbered 35,638. During the same period there were 22,928 patents granted and reissued, and 1,429 trade-marks and labels registered. The number of patents issued in the year 1875 was 14,837. The receipts during the last fiscal year were \$1,074,974.35, and the total expenditures, not including contingent expenses, \$934,123.11.

There were 9,788 applications for patents pending on the 1st day of July, 1884, and 5,786 on the same

date in the year 1885. There has been considerable improvement made in the prompt determination of applications and a consequent relief to expectant inventors.

A number of suggestions and recommendations are contained in the report of the Commissioner of Patents which are well entitled to the consideration of Congress.

In the Territory of Utah the law of the United States passed for the suppression of polygamy has been energetically and faithfully executed during the past year, with measurably good results. A number of convictions have been secured for unlawful co-habitation, and in some cases pleas of guilty have been entered and a slight punishment imposed upon a promise by the accused that they would not again offend against the law, nor advise, counsel, aid, or abet, in any way, its violation by others.

The Utah Commissioners express the opinion, based upon such information as they are able to obtain, that but few polygamous marriages have taken place in the Territory during the last year. They further report that while there can not be found upon the registration lists of voters the name of a man actually guilty of polygamy, and while none of that class are holding office, yet at the last election in the Territory all the officers elected except in one county were men who, though not actually living in the practice of polygamy, subscribe to the doctrine of polygamous marriages as a divine revelation and a law unto all higher and more binding upon the conscience than any human law, local or national. This is the strange spectacle presented of a community protected by a republican form of government, to which they owe allegiance, sustaining by their suffrages a principle and a belief which sets at naught that obligation of absolute obedience to the law of the land which lies at the foundation of republican institutions.

The strength, the perpetuity, and the destiny of the nation rest upon our homes, established by the law of God, guarded by parental care, regulated by parental authority, and sanctified by parental love.

These are not the homes of polygamy.

The mothers of our land, who rule the nation as they mold the characters and guide the actions of their sons, live according to God's holy ordinances, and each, secure and happy in the exclusive love of the father of her children, sheds the warm light of true womanhood, unperverted and unpolluted, upon all within her pure and wholesome family circle.

These are not the cheerless, crushed, and unwomanly mothers of polygamy.

The fathers of our families are the best citizens of the republic. Wife and children are the sources of patriotism, and conjugal and parental affection beget devotion to the country. The man who, undefiled with plural marriage, is surrounded in his single home with his wife and children, has a stake in the country which inspires him with respect for its laws and courage for its defense.

These are not the fathers of polygamous families.

There is no feature of this practice, or the system which sanctions it, which is not opposed to all that is of value in our institutions.

There should be no relaxation in the firm but just execution of the law now in operation, and I should be glad to approve such further discreet legislation as will rid the country of this blot upon its fair fame.

Since the people upholding polygamy in our Territories are re-enforced by immigration from other lands, I recommend that a law be passed to prevent the importation of Mormons into the country.

The agricultural interest of the country demands just recognition and liberal encouragement. It sustains with certainty and unfailing strength our nation's prosperity by the products of its steady toil, and bears its full share of the burden of taxation without complaint. Our agriculturists have but slight personal representation in the councils of the nation, and are generally content with the humbler duties of citizen-

ship and willing to trust to the bounty of Nature for a reward of their labor. But the magnitude and value of this industry is appreciated when the statement is made that of our total annual exports more than three fourths are the products of agriculture, and of our total population nearly one half are exclusively engaged in that occupation.

The Department of Agriculture was created for the purpose of acquiring and diffusing among the people useful information respecting the subjects it has in charge, and aiding in the cause of intelligent and progressive farming by the collection of statistics, by testing the value and usefulness of new seeds and plants, and distributing such as are found desirable among agriculturists. This and other powers and duties with which this department is invested are of the utmost importance, and if wisely exercised must be of great benefit to the country. The aim of our beneficent Government is the improvement of the people in every station and the amelioration of their condition. Surely our agriculturists should not be neglected. The instrumentality established in aid of the farmers of the land should not only be well equipped for the accomplishment of its purpose, but those for whose benefit it has been adopted should be encouraged to avail themselves fully of its advantages.

The prohibition of the importation into several countries of certain of our animals and their products, based upon the suspicion that health is endangered in their use and consumption, suggests the importance of such precautions for the protection of our stock of all kinds against disease as will disarm suspicion of danger and cause the removal of such an injurious prohibition.

If the laws now in operation are insufficient to accomplish this protection, I recommend their amendment to meet the necessities of the situation, and I commend to the consideration of Congress the suggestions contained in the report of the Commissioner of Agriculture calculated to increase the value and efficiency of this department.

The report of the Civil-Service Commission, which will be submitted, contains an account of the manner in which the civil-service law has been executed during the last year, and much valuable information on this important subject.

I am inclined to think that there is no sentiment more general in the minds of the people of our country than a conviction of the correctness of the principle upon which the law enforcing civil-service reform is based. In its present condition the law regulates only a part of the subordinate public positions throughout the country. It applies the test of fitness to applicants for these places by means of a competitive examination, and gives large discretion to the commissioners as to the character of the examination and many other matters connected with its execution. Thus the rules and regulations adopted by the commission have much to do with the practical usefulness of the statute and with the results of its application.

The people may well trust the commission to execute the law with perfect fairness and with as little irritation as is possible. But of course no relaxation of the principle which underlies it and no weakening of the safeguards which surround it can be expected. Experience in its administration will probably suggest amendment of the methods of its execution, but I venture to hope that we shall never again be remitted to the system which distributes public positions purely as rewards for partisan service. Doubts may well be entertained whether our Government could survive the strain of a continuance of this system, which upon every change of administration inspires an immense army of claimants for office to lay siege to the patronage of Government, engrossing the time of public officers with their importunities, spreading abroad the contagion of their disappointment, and filling the air with the tumult of their discontent.

The allurements of an immense number of offices

and places, exhibited to the voters of the land, and the promise of their bestowal in recognition of partisan activity, debauch the suffrage and rob political action of its thoughtful and deliberative character. The evil would increase with the multiplication of offices consequent upon our extension, and the mania for office-holding, growing from its indulgence, would pervade our population so generally that patriotic purpose, the support of principle, the desire for the public good, and solicitude for the nation's welfare, would be nearly banished from the activity of our party contests, and cause them to degenerate into ignoble, selfish, and disgraceful struggles for the possession of office and public place.

Civil-service reform enforced by law came none too soon to check the progress of demoralization.

One of its effects, not enough regarded, is the freedom it brings to the political action of those conservative and sober men who, in fear of the confusion and risk attending an arbitrary and sudden change in all the public offices with a change of party rule, cast their ballots against such a chance.

Parties seem to be necessary, and will long continue to exist; nor can it be now denied that there are legitimate advantages, not disconnected with office-holding, which follow party supremacy. While partisanship continues bitter and pronounced, and supplies so much of motive to sentiment and action, it is fair to hold public officials in charge of important trusts responsible for the best results in the performance of their duties, and yet insist that they shall rely, in confidential and important places, upon the work of those not only opposed to them in political affiliation, but so steeped in partisan prejudice and rancor that they have no loyalty to their chiefs and no desire for their success. Civil-service reform does not exact this, nor does it require that those in subordinate positions who fail in yielding their best service, or who are incompetent, should be retained simply because they are in place. The whining of a clerk discharged for indolence or incompetency, who, though he gained his place by the worst possible operation of the spoils system, suddenly discovers that he is entitled to protection under the sanction of civil-service reform, represents an idea no less absurd than the clamor of the applicant who claims the vacant position as his compensation for the most questionable party work.

The civil-service law does not prevent the discharge of the indolent or incompetent clerk, but it does prevent supplying his place with the unfit party worker. Thus, in both these phases, is seen benefit to the public service. And the people who desire good government having secured this statute will not relinquish its benefits without protest. Nor are they unmindful of the fact that its full advantages can only be gained through the complete good faith of those having its execution in charge. And this they will insist upon.

I recommend that the salaries of the Civil-Service Commissioners be increased to a sum more nearly commensurate to their important duties.

It is a source of considerable and not unnatural discontent that no adequate provision has yet been made for accommodating the principal library of the Government. Of the vast collection of books and pamphlets gathered at the Capitol, numbering some 700,000, exclusive of manuscripts, maps, and the products of the graphic arts, also of great volume and value, only about 300,000 volumes, or less than half the collection, are provided with shelf-room. The others, which are increasing at the rate of from 25,000 to 30,000 volumes a year, are not only inaccessible to the public, but are subject to serious damage and deterioration from other causes in their present situation.

A consideration of the fact that the Library of the Capitol has twice been destroyed or damaged by fire, its daily increasing value, and its importance as a place of deposit of books under the law relating to copyright, make manifest the necessity of prompt action to insure its proper accommodation and protection.

My attention has been called to a controversy which

has arisen from the condition of the law relating to railroad facilities in the city of Washington, which has involved the commissioners of the District in much annoyance and trouble. I hope this difficulty will be promptly settled by appropriate legislation.

The commissioners represent that enough of the revenues of the District are now on deposit in the Treasury of the United States to repay the sum advanced by the Government for sewer improvements under the act of June 30, 1884. They desire now an advance of the share which ultimately should be borne by the District of the cost of extensive improvements to the streets of the city. The total expense of these contemplated improvements is estimated at \$1,000,000, and they are of the opinion that a considerable sum could be saved if they had all the money in hand, so that contracts for the whole work could be made at the same time. They express confidence that if the advance asked for should be made, the Government would be reimbursed the same within a reasonable time. I have no doubt that these improvements could be made much cheaper if undertaken together and prosecuted according to a general plan.

The license law now in force within the District is deficient and uncertain in some of its provisions, and ought to be amended. The commissioners urge, with good reason, the necessity of providing a building for the use of the District government which shall better secure the safety and preservation of its valuable books and records.

The present condition of the law relating to the succession to the Presidency in the event of the death, disability, or removal of both the President and Vice-President is such as to require immediate amendment. This subject has repeatedly been considered by Congress, but no result has been reached. The recent lamentable death of the Vice-President, and vacancies at the same time in all other offices the incumbents of which might immediately exercise the functions of the Presidential office, have caused public anxiety and a just demand that a recurrence of such a condition of affairs should not be permitted.

In conclusion, I commend to the wise care and thoughtful attention of Congress the needs, the welfare, and the aspirations of an intelligent and generous nation. To subordinate these to the narrow advantages of partisanship, or the accomplishment of selfish aims, is to violate the people's trust and betray the people's interests. But an individual sense of responsibility on the part of each of us, and a stern determination to perform our duty well, must give us place among those who have added in their day and generation to the glory and prosperity of our beloved land.

GROVER CLEVELAND.

WASHINGTON, December 8, 1885.

The Rules.—In the House of Representatives, Mr. Morrison, of Illinois, from the committee on rules, reported in favor of adopting the rules of the Forty-eighth Congress with certain amendments, some of which were so important in their scope as to cause warm discussion. One of them was designed to deprive the Committee on Appropriations of a great share of its powers, by referring the appropriations for carrying on certain departments to the committees appointed to deal with those departments. The report of the majority of the committee on rules said on this subject:

Rule XI is proposed to be amended by transferring certain of the general appropriation bills from the custody and control of the Committee on Appropriations to the following named committees, viz.: The consular and diplomatic bill to the Committee on Foreign Affairs; the army and Military Academy bills to the Committee on Military Affairs; the naval bill to the Committee on Naval Affairs; the post-office

bill to the Committee on the Post-Office and Post-Roads; and the Indian bill to the Committee on Indian Affairs. This leaves with the Committee on Appropriations the following-named bills, namely: Legislative, executive, and judicial, sundry civil, deficiency, fortification, pension, and District of Columbia bills, which include more than half the annual appropriations for carrying on the Government. The total appropriations for the fiscal year 1885-'86 are \$215,511,595.24, of which sum \$114,824,465.48 was appropriated in the bills last named. The remaining expenditures of the Government are provided for by permanent appropriations. The Committee on Appropriations was created on the 2d of March, 1865 (second session Thirty-eighth Congress), but was not appointed until the following Congress. Prior to its creation, the general appropriation bills were reported by the Committee on Ways and Means, which committee was further divided by the transfer of its jurisdiction on the subjects of banking and bank currency, and the Pacific Railroad to standing committees on those subjects. On the 14th of September, 1887 (first session Twenty-fifth Congress), the House adopted the following rule, viz.: "It shall also be the duty of the Committee on Appropriations, within thirty days after their appointment, at every session of Congress, commencing on the first Monday of December, to report the general appropriation bills." On the 2d of March, 1865, the House adopted the following amendment to the foregoing clause, viz., "or, in failure thereof, the reasons for such failure."

Under these provisions, the various appropriation bills were reported within the time prescribed, or the failure therefor explained, with but few exceptions, until the revision of the rules in the second session of the Forty-sixth Congress.

In that revision, the requirement as to reporting these bills was omitted, and from that time the general appropriation bills have been reported as the committee saw fit.

For nearly forty years of our history the appropriations were made in one act, entitled, "An act making appropriations for the support of the Government." The first separate bill for the expenses of the Post-Office Department was passed in 1844. In 1847 the appropriations were made in nine separate bills viz., army, civil and diplomatic, deficiencies, fortifications, Indians, Military Academy, navy, pensions, and post-office. In 1856, the consular and diplomatic appropriations were for the first time embodied in a separate bill. In 1857, the legislative, executive, and judicial bill first appeared in its present form. In 1862, the sundry civil bill was established, containing the various miscellaneous items not embraced in the other bills; and in 1880, the agricultural and District of Columbia bills were established, the agricultural bill being transferred to the Committee on Agriculture. With but few exceptions, the river and harbor bill was prepared and reported by the Committee on Commerce, until the creation of the Committee on Rivers and Harbors in 1883, when it was assigned to that committee. As showing the great increase of appropriations for the support of the Government, it may be stated that each one of our principal general appropriation bills embraces as much money as the whole amount of the net ordinary expenditures of the Government during the first ten years of its existence, and the specific objects to be investigated and provided for in these bills have so greatly increased in number that it has become a very considerable task even to enumerate them. For several years past, the various general appropriation bills have been reported at such late periods in the session as to preclude their careful and thorough investigation by members not on the Committee on Appropriations. The committee is of opinion that the distribution proposed will enable all these bills to be reported at earlier periods in the session, will permit a more careful and thorough consideration of each bill by the committee having jurisdiction of it, and also by the House, resulting in more

considerate and economic legislation, and will obviate the necessity for the passage of any of these bills under a suspension of the rules, which has been so frequently done in late years."

On the other hand, Mr. Randall, of Pennsylvania, in the minority report, said:

Before the war, the Committee of Ways and Means prepared and reported the necessary appropriation bills to execute the laws and carry on the Government, and it also arranged the taxes requisite to provide income sufficient to meet the proposed expenditures. Those who were for lessening taxes were of course in favor of economical expenditures, and those who were not, favored the largest appropriations. Instead of returning to the old system, it is proposed still further to separate these closely related and interdependent subjects. General appropriation bills are to be still further divided and scattered, and the result inevitably will be that it will be impossible to keep up any just relations between receipts and expenditures.

Experience and observation demonstrate such distribution leads to continually increasing appropriations, and renders it more difficult to keep expenditures within the limits of receipts. In the instances where appropriation bills have been taken from the Committee on Appropriations and given to the committees having charge of general legislation on the same subjects, it is susceptible of proof that those particular appropriations have steadily increased, and to such a degree that, if the same ratio of increase were to be followed in all the other appropriations, the result would be not only to exhaust the surplus revenue, but compel the levying of increased taxation.

The best interests of the people require that the subject of appropriations should mainly be committed to the charge of one committee—not that one set of men is abler or more honest than another set, but because experience has shown it is the safest course to pursue. Such body of men can make careful scrutiny into every detail by itself, and, in connection with others, and taking a survey of the whole field of receipts and expenditures, it will be responsible to the House to see to it that the latter shall be reduced to an economical basis, and kept within the limits of the public revenue.

If that responsibility be disseminated through many committees, it will become so loose and uncertain as to be lost altogether, and it is not unlikely, as we have been told in debate on this floor by men of the highest distinction in our councils, that if the proposed distribution of appropriation bills among the several committees shall take place it will be at the "peril of the public interests, and will release the grasp which the Committee on Appropriations can alone keep on the purse-strings of the Government." The result, as we have also been told, would "absolutely break down all economy and good order and good management of the finances."

Another of the important amendments recommended in the majority report was the striking out from the third clause of Rule XXI the following prohibition as to new legislation:

Nor shall any provision in any such bill or amendment thereto changing existing law be in order, except such as, being germane to the subject-matter of the bill, shall retrench expenditures by the reduction of the number and salary of the officers of the United States, by the reduction of the compensation of any person paid out of the Treasury of the United States, or by the reduction of amounts of money covered by the bill: *Provided*, That it shall be in order further to amend such bill upon the report of the committee having jurisdiction of the subject-matter of such amendment, which amendment, being germane to the subject-matter of the bill, shall retrench expenditures.

The advocates of this amendment contended that it would tend to prevent legislation in appropriation bills, while its opponents argued that it would result in the old practice of attaching all sorts of riders to such measures.

The third important amendment recommended by the majority of the Committee on Rules, was to change Rule XXIV so as "to establish a morning hour for the consideration of business reported from the committees of the House."

The sentiment in favor of a change in the old rules was overwhelming, and the proposed amendments were adopted. The principal feeling shown in the debate on the subject was one of jealousy as to the power formerly held by the Committee on Appropriations.

In discussing the joint rules of the two Houses of Congress, the Senate fell into a curious wrangle about Rule XIII, which is as follows:

No intoxicating liquors shall be offered for sale, exhibited, or kept within the Capitol, or in any room or building connected therewith, or on the public grounds adjacent thereto; and it shall be the duty of the respective Sergeants-at-Arms of the two Houses, under the supervision of the presiding officers thereof, respectively, to strictly enforce the foregoing provisions, and any officer or employé of either House who shall in any manner violate or connive at the violation of this rule shall be dismissed from office.

Mr. Vest, of Missouri, said: "I have no committee-room, and have no personal interest in this matter; but there is one thing in this rule which I have always opposed, and that is the system of espionage, of informers, which seems to be embraced within the provisions of this thirteenth rule. Every Senator here knows very well that his clerk or his doorkeeper who sees him—assuming the case to exist—with a jug, or a bottle, or a flask in his committee-room, under the provisions of this rule must inform upon him, or he will be put out of office. We know that will not be done; and we know no Senator would tolerate it. If this rule is enacted there ought to be an amendment to it that any member of either House or any employé who connived at keeping liquor in the Capitol should be expelled. Let us apply it to Senators and Representatives, and do not let us, if we propose to go into wholesale prohibition, put it on the humble employés of the Senate and escape ourselves. We know very well that any Senator who wants alcoholic stimulants in his committee-room will have them, and we know that he would inflict the severest punishment within his power on any appointee of his who would inform on him. All I ask is that equal justice shall be meted out to all. I am opposed myself to the spirit of the whole thing. I believe that it will do no good; that it encourages hypocrisy, and that it is simply an attempt of which no Senator would be guilty. It is tampering to a fanatical spirit in the country on this question, to which I, for one, will never give my counsel."

Mr. Saulsbury, of Delaware, on the other

hand, argued: "While I do not myself indulge in intoxicating liquors, I have no objection to gentlemen, who see proper, doing so, nor would I legislate to stop them from exercising the freest liberty; but, as a Senator called upon to say whether liquor shall be sold or exhibited around the Senate-chamber, I believe that the judgment of the country is that it ought to be stopped, and hence I voted for the proposed joint rule. I think it is a disgrace to the American people that the Capitol of the country, erected for the enactment of laws for the government of the people, should be converted into a grog-shop, or a place where liquor can be exhibited and sold, and where the youth of the land who come here, and who see proper to go to the restaurant, may purchase liquor. I think that we should not suffer this Capitol to become a grog-shop for the dissemination of intemperance throughout the land. I stand upon the resolution, firmly fixed in my own mind that such a joint rule ought to be passed, and that liquor should not be sold within the bounds of the Capitol."

Mr. Cockrell, of Missouri, said: "I propose that the same penalties shall be visited upon Senators that we propose to visit upon our subordinate officers for a violation of this rule. It is right, it is just. I have known appropriation committees a few times delayed by reason of intoxication among the subordinates. I have seen the Senate adjourn largely because of the excitement of some of its members and of the plain indications that unnecessary discussions were about to grow up. I do not say that the Senate had to adjourn in consequence of this fact, but certain Senators were so disposed to discussion that the public business would not have been carried on, discussion would have been prolonged indefinitely, and other Senators here know that that point is well taken."

Mr. Frye, of Maine, in vindication of the Senate against this imputation, said: "I am, on the whole, rather sorry that this discussion has arisen on this clause, because some things have been said here that Senators will regret to have said. I remember breakfasting with some distinguished Senators, five or six years ago, who were members of the United States Senate twenty or twenty-five years back. The father of the distinguished Senator from Pennsylvania at my right (Mr. Cameron) was one of them; Senator Hamlin, of Maine, was another. They began to relate reminiscences of the United States Senate, and they said that they had seen the Senate again and again without a quorum because more than a quorum was drunk. They had seen distinguished Senator after Senator undertake to rise in his seat to make a speech, and he could not rise because he was drunk. I have been in Congress some fifteen or sixteen years. When I first came into the national House of Representatives, take the night session, there would be a dozen members of the other House breaking up the

proceedings of the body, and making it a disgrace. That thing does not exist to-day; and I say to the Senator from Missouri that he is doing grave injustice to Senators on this floor, associated with him, by the remarks which he has made, sending out the impression to the country that so many Senators of the United States Senate were drunk in the ordinary business of the Senate that the Senate was obliged to suspend its business."

The Senate adopted the rule, after striking out the clause in regard to the punishment of offenders against its provisions.

The Presidential Succession.—In the first session of the Forty-seventh Congress a bill regulating the presidential succession was brought forward by Mr. Hoar, of Massachusetts, but it was not acted upon; in the first session of the Forty-eighth Congress the same bill substantially was brought forward again and passed by the Senate, but it was not taken up by the House of Representatives. On Dec. 15, 1885, the same measure was brought forward in the Senate. It is follows:

Be it enacted, etc., That in case of removal, death, resignation, or inability of both the President and Vice-President of the United States, the Secretary of State, or if there be none, or in case of his removal, death, resignation, or inability, then the Secretary of the Treasury, or if there be none, or in case of his removal, death, resignation, or inability, then the Secretary of War, or if there be none, or in case of his removal, death, resignation, or inability, then the Attorney-General, or if there be none, or in case of his removal, death, resignation, or inability, then the Postmaster-General, or if there be none, or in case of his removal, death, resignation, or inability, then the Secretary of the Navy, or if there be none, or in case of his removal, death, resignation, or inability, then the Secretary of the Interior, shall act as President until the disability of the President or Vice-President is removed or a President shall be elected: *Provided*, That whenever the powers and duties of the office of President of the United States shall devolve upon any of the persons named herein, if Congress be not then in session, or if it would not meet in accordance with law within twenty days thereafter, it shall be the duty of the person upon whom said powers and duties shall devolve to issue a proclamation convening Congress in extraordinary session, giving twenty days' notice of the time of meeting.

Sec. 2. That the preceding section shall only be held to describe and apply to such officers as shall have been appointed by the advice and consent of the Senate to the offices therein named, and such as are eligible to the office of President under the Constitution, and not under impeachment by the House of Representatives of the United States at the time the powers and duties of the office shall devolve upon them respectively.

Sec. 3. That sections 146, 147, 148, 149, and 150 of the Revised Statutes are hereby repealed.

The provisions of the Revised Statutes to be repealed under the last section are those settling the order of succession upon the President *pro tempore* of the Senate and the Speaker of the House of Representatives in case of the removal, death, resignation, or inability of the President and Vice-President, and providing for a new election. The idea of the bill, Mr. Hoar said, was taken from his brother, formerly Attorney-General in Grant's Cabinet. In

support of the measure, among other things, the Senator from Massachusetts said: "As it has been said, the immediate occasion for this bill, which has given it its prominence in public estimation, although it has passed the Senate once or twice when there was no such contingency—the immediate occasion of this bill is the impression upon the public mind of the grave and serious necessity for casting new safeguards about the life of the President of the United States; it is clear, as I said just now in another connection, that the security against the attempts on the life of the President by any political criminal in a time of great public excitement, when persons are maddened and crazed as the feeble mind of Guiteau was by a political quarrel, or a person who persuades himself that he is performing the part of a Brutus, by ridding the country of a tyrant, who is sane—will be much greater under this bill than under existing law. The motive which affects their minds, and which has affected at least two such minds in our country, will continue to affect them if a new election of President is to be the result of the removal of the President and Vice-President. But if the principal adviser, the principal leader and exponent of the policies and principles of the party that elected the existing President, is to succeed to the office, and so in turn his other Cabinet advisers, that motive is entirely gone. And it is not a man, it is under the theory of our Constitution a principle of political conduct for which the people of the United States declare when they elect a President and Vice-President; and that is continued by the provisions of this bill."

Mr. Maxey, of Texas, in advocacy of the measure, argued: "It has been said that the President of the Senate and the Speaker of the House should be selected because they come from the people; that the Secretary of State and the Secretary of the Treasury, and so on, should not be because they do not. The President of the Senate does not come by election from the people of the United States. I have shown that he is not an officer of the United States. He comes from his State and holds his commission from his State, and the influences, whatever they may be, brought to bear upon the action of a Senator in this body are brought by the people of his State. The Speaker of the House is not an officer of the United States, does not come from the United States by election of the people of the United States, but from the election of one of the districts in his State. The Secretary of State is an officer of the United States beyond all possible question. He is appointed by authority of the Constitution of the United States; he holds his commission by and with the advice and consent of the Senate of the United States, and he is selected by the President, whatever may be the policy of the President, because he is in accord with the policy which the President proposes to pursue in his Administration.

So that, whether the President be a Republican or a Democrat, whatever he may be, it is carrying out the will of the people as nearly as it is possible for us to do should the unfortunate occurrence come about that we have no President or Vice-President when we place in his stead a man whose politics are in accord with those of the people as indicated by their election of President and Vice-President. Therefore, in my judgment, not only because these are officers of the United States, but because they are the proper officers, I believe the provisional successor should come from that line."

Mr. Edmunds, of Vermont, said, in criticism of the measure: "If I were to regulate this matter (as I know from the present situation and from the opinion of a majority of the Senate I am not to do), or if I were to assist in regulating it, I should leave the substance of the law to stand exactly where it is now, but I should add to it by providing that the House of Representatives should meet and organize on the 4th day of March, when its term begins, so that the country would have four lives between the execution of its executive office and chaos. That would meet everything except a contingency that would not happen once in a hundred thousand years probably before a new election could be had. That is what I would have, and I would have it upon the solid principle, which I believe in, that it was the intention and the necessary scheme of a government of the people that when a vacancy occurred in the office of Chief Magistrate whom the people had elected the representatives of that people, through its States and through its House of Representatives, should be the guardians of that high political office until the voice of the people could be taken again in the selection of a Chief Magistrate elected directly, and that it was not their intention and that it was not in accordance with the true philosophy of republican and democratic government that the President of the United States shall be authorized to name the man who in case of his disability shall be President in his stead, and, as this bill has it, it may be for three years eleven months and twenty-nine days.

"It approaches in its nature to the exertion of a royal prerogative of the king in his will or in some way naming the regent who shall perform the functions of the Executive office in a kingdom during the minority of the heir-apparent. I do not believe in it. And this bill in this respect of continuing the exertion of the presidential power in the hands of the Secretary of State, whoever he may be—and of course I am not speaking of persons at all, because I have a very high personal regard and respect for the present Secretary of State—but the continuing in his hands, or by another accident in the hands of some one of six or seven men, the absolute possession of the Executive office by designation of the President and his selection for almost the whole of

a term of four years, without any power in the States or the people to change it or to have a new election, is, with great respect to this committee, contrary to my ideas of good and safe republican government."

Mr. Edmunds moved to amend the bill by striking out so much of the third section as provided for the repeal of sections 147, 148, 149, and 150 of the Revised Statutes; so that only section 146, which vested the succession in the President *pro tempore* of the Senate and the Speaker of the House of Representatives, should be repealed. This amendment was defeated by the following vote:

YEAS—Aldrich, Blair, Cameron, Cockrell, Conger, Edmunds, Hawley, McMillan, Mahone, Manderson, Mitchell of Pennsylvania, Morrill, Palmer, Plumb, Sewell, Sherman, Spooner, Stanford, Teller, Vance, Vest—21.

NAYS—Allison, Beck, Berry, Blackburn, Brown, Butler, Call, Chace, Coke, Colquitt, Cullom, Dolph, Eustis, Evans, Frye, George, Gibson, Gorman, Gray, Harris, Harrison, Hoar, Ingalls, Jackson, Jones of Arkansas, Logan, Maxey, Mitchell of Oregon, Morgan, Platt, Pugh, Ransom, Saulsbury, Voorhees, Walhall, Wilson of Iowa, Wilson of Maryland—37.

Absent—Bowen, Camden, Dawes, Fair, Hale, Hampton, Jones of Florida, Jones of Nevada, Kenna, McPherson, Miller of California, Miller of New York, Payne, Pike, Riddleberger, Sabin, Sawyer, Van Wyck—18.

The bill was then passed, without a division, on December 17, 1885.

On Jan. 12, 1886, the measure was reported to the House from the select committee on the election of President and Vice-President, and Jan. 13 it was read; Jan. 14 it was debated; and Jan. 15 it passed the House. The discussion in that body was fuller than the discussion in the Senate, because there the subject was new. The great point at issue was the constitutionality of a law under which an appointive officer might in certain contingencies become President for four years. Mr. Cooper, of Ohio, put the argument as follows: "If there be no reasonable doubt that the provisions of this bill would apply as well to a President and Vice-President elect as to a President and Vice-President who have been inaugurated, then I suggest most serious objections which have occurred to me. First, I am profoundly doubtful of the constitutionality of a provision which would vest, as this bill, in one contingency, would vest, the presidency for a full term of four years in an officer appointed by an outgoing Administration. Sir, I believe this to be in violation, not only of the letter and spirit of the Constitution, but of the spirit out of which the Constitution arose. The letter of the Constitution is that the President shall be 'elected'; not that a man who may hold office under the President shall act as President, but that the President shall be elected; and it goes on to provide how he shall be elected.

"It was wise in the fathers to provide that the incumbent of this high office for any length of time should ever know and ever be

reminded that he owed his position to the people; that he was under obligation to the people for it, and responsible to the people for the proper discharge of his duties; and any legislation which tends to widen the space between the President and the people is, I submit, unwise legislation. And this bill, which provides for the holding of the office of President for a full presidential term by a man who had not been elected and may only be a member of an Administration which may have been defeated, repudiated, and dead, is in express violation of the Constitution, and this was the opinion of the Senate Judiciary Committee of 1856."

An amendment, proposed by the minority of the select Committee on an Election of President and Vice-President, to insert in the first section the clause "or whenever the offices of President and Vice-President of the United States become vacant," was rejected; an amendment submitted by Mr. Adams, of Illinois, to repeal only sections 146 and 150 of the Revised Statutes was also rejected by a vote of 113 yeas to 153 nays. Mr. Cooper, of Ohio, moved to amend by striking out all of section 8 and inserting the following:

In the event of the death or constitutional inability of the President-elect, or failure to assume his office, the Vice-President shall act as President the same as if such death or inability had occurred after his inauguration.

This amendment was likewise rejected. Mr. McKinley, of Ohio, offered the following substitute, which was rejected by 108 to 159:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, In case of removal, death, resignation, or inability of both the President and Vice-President of the United States, the President of the Senate, or, if there is none, then the Speaker of the House of Representatives, for the time being, shall act as President until the disability is removed or a President elected. And for the purpose of having a Speaker of the House of Representatives in office continuously, the Congress shall convene at 12 o'clock m. on the 4th day of March next succeeding the election of Representatives in Congress; and whenever a vacancy exists either in the office of the President *pro tempore* of the Senate or Speaker of the House, the President shall convene the House in which the vacancy exists for the purpose of electing a presiding officer.

SECTION 2. Whenever the offices of President and Vice-President both become vacant, the Secretary of State shall forthwith cause a notification thereof to be made to the Executive of every State, and shall also cause the same to be published in at least one of the newspapers printed in each State.

SEC. 3. The notification shall specify that electors of a President and Vice-President of the United States shall be appointed or chosen in the several States as follows:

First. If there shall be the space of two months yet to ensue between the date of such notification and the first Wednesday in December then next ensuing, such notification shall specify that the electors shall be appointed or chosen within thirty-four days preceding such first Wednesday in December.

Second. If there shall not be the space of two months between the date of such notification and such first Wednesday in December, and if the term for which the President and Vice-President last in

office were elected will not expire on the 3d day of March next ensuing, the notification shall specify that the electors shall be appointed or chosen within thirty-four days preceding the first Wednesday in December in the year next ensuing. But if there shall not be the space of two months between the date of such notification and the first Wednesday in December then next ensuing, and if the term for which the President and Vice-President last in office were elected will expire on the 3d day of March next ensuing, the notification shall not specify that electors are to be appointed or chosen.

Sec. 4. Electors appointed or chosen upon the notification prescribed by the preceding section shall meet and give their votes upon the first Wednesday of December specified in the notification.

Sec. 5. The provisions of this title, relating to the quadrennial election of President and Vice-President shall apply with respect to any election to fill vacancies in the offices of President and Vice-President, held upon a notification given when both offices become vacant.

Sec. 6. The only evidence of a refusal to accept, or of a resignation of the office of President or Vice-President, shall be an instrument in writing, declaring the same, and subscribed by the person refusing to accept or resign, as the case may be, and delivered into the office of the Secretary of State.

The yeas and nays on this amendment were as follow:

YEAS—G. E. Adams, C. H. Allen, J. A. Anderson, Atkinson, Bayne, Bennett, Bound, Bouteille, Brady, T. M. Browne, C. E. Brown, W. W. Brown, Buchanan, Bunnell, Burrows, Butterworth, J. M. Campbell, Cannon, Caswell, Conger, Cooper, Cutcheon, Davis, Dingley, Dorsey, Everhart, Farquhar, Felton, Fleeger, Fuller, Funston, Gallinger, Gilliland, Grosvenor, Grout, Guenther, Hayden, Haynes, Hiestand, Hepburn, Herman, Hires, Hitt, Holmes, Hopkins, Houk, Jackson, F. A. Johnson, J. T. Johnston, Ketcham, La Follette, Lehlbach, Libbey, Lindsley, Little, Long, Loutitt, Lyman, Markham, McComas, McKenna, McKinley, Millard, Milliken, Morrill, Morrow, Negley, Nelson, O'Donnell, Charles O'Neill, Osborne, Owen, Parker, Perkins, Peters, Pettibone, Plumb, Price, Ranney, Rice, Rockwell, Romeis, Rowell, Ryan, Sawyer, Scranton, Smalls, Spooner, Steele, Stephenson, J. W. Stewart, E. F. Stone, Strait, Swinburne, Symes, E. B. Taylor, I. H. Taylor, Zachary Taylor, J. R. Thomas, O. B. Thomas, Thompson, Van Schaick, Wade, Wakefield, A. J. Weaver, Weber, A. C. White, Milo White—108.

NAYS—C. M. Anderson, Arnot, Baker, Barbour, Barksdale, Barnes, Barry, Beach, Blanchard, Bland, Bliss, Blount, Boyle, C. R. Breckinridge, W. C. P. Breckinridge, Buck, Bynum, Cabell, Caldwell, J. E. Campbell, T. J. Campbell, Candler, Catchings, Clardy, Clements, Cobb, Cole, Collins, Comstock, Cowles, Cox, Crisp, Croxton, Culberson, Curtin, Daniel, R. H. M. Davidson, Dawson, Dibble, Dockery, Dougherty, Dowdney, Dunn, Eden, Eldredge, Ellsbury, Ely, Ermentrout, Fisher, Foran, Ford, Forney, Frederick, Gay, Geddes, C. H. Gibson, Glass, R. S. Green, W. J. Green, Hahn, Hale, Hall, Halsell, Hammond, Harris, Hatch, Heard, Hemphill, J. S. Henderson, Herbert, Hill, Hiscock, Holman, Howard, Hutton, Irion, James, T. D. Johnston, J. H. Jones, J. T. Jones, King, Kleiner, Lanham, Le Fevre, Lovering, Lowry, Mahoney, Martin, Matson, McAdoo, McCrary, McMillin, McRae, Merriman, Miller, Mills, Mitchell, Moffat, Morgan, Morrison, Murphy, Neal, Neece, Norwood, Oates, O'Ferrall, Outhwaite, Payne, Peel, Perry, Pidcock, Pindar, Reagan, J. W. Reid, Reese, Richardson, Riggs, Robertson, Rogers, Sadler, Sayers, Scott, Seney, Seymour, Shaw, Singleton, Sowden, Spriggs, Springer, Stahlnecker, Charles Stewart, St. Martin, W. J. Stone, of Kentucky, W. J. Stone, of Missouri, Struble, Swope, Taubbee, J. M. Taylor, Tillman, Town-

shend, Trigg, Tucker, Turner, Van Eaton, Viele, Wadsworth, J. H. Ward, T. B. Ward, A. J. Warner, William Warner, J. B. Weaver, Wheeler, Wilkins, Willis, Wilson, Winans, Wise, Wolford, Worthington—159.

Not Voting—J. J. Adams, Aiken, J. M. Allen, Ballentine, Belmont, Bingham, Bragg, Brum, Burleigh, Burnes, Felix Campbell, Carleton, Compton, Crain, Dargan, Davenport, A. C. Davidson, Dunham, Evans, Findlay, Eustace Gibson, Glover, Goff, Hamback, Harmer, D. B. Henderson, T. J. Henderson, Henley, Hewitt, Kelley, Laffoon, Laird, Landes, Lawler, Lore, Maybury, Muller, O'Hara, J. J. O'Neill, Payson, Phelps, Pirce, Pulitzer, Randall, Rankin, T. B. Reed, Sessions, Skinner, Snyder, Storm, Tarsney, Throckmorton, Waite, Wellborn, West, Whiting, Woodburn—57.

Mr. Ryan, of Kansas, moved to recommit the bill as follows:

Recommit the bill with instructions to report as a substitute a resolution, submitting an amendment to the Constitution providing one or more additional Vice-Presidents, upon whom, in their order, the office of President shall devolve in case of the removal, death, resignation, or inability both of President and Vice-President.

Mr. Everhart, of Pennsylvania, offered the following substitute for the instructions embodied in Mr. Ryan's motion :

That in case of the removal, death, resignation, or inability of both the President and Vice-President of the United States, the following persons, if eligible to the office of President, and not under impeachment or indictment at the time being, shall, respectively, in the order and on the contingencies hereinafter named, act as President of the United States until the disability of the President and Vice-President be removed or President shall be elected: First, the Speaker of the House of Representatives; or if there be no Speaker, or if there be and he decline, or as President, die, resign, be removed, or be unable to act as such, then, second, the President *pro tempore* of the Senate; or if there be no President *pro tempore* of the Senate, or if there be and he decline, or as President, die, resign, be removed, or be unable to act as such, then, fourth, the Chief-Justice of the Supreme Court of the United States, having been legally confirmed; or if there be no Chief-Justice, or if there be and he decline, or, as President, die, resign, be removed, or be unable to act as such, then, fifth, the Secretary of the Treasury of the United States, having been legally confirmed; or if there be no Secretary of the Treasury, or if there be and he decline, or, as President, die, resign, be removed, or be unable to act as such, then, sixth, the Attorney-General of the United States, having been legally confirmed: *Provided*, That when any of the persons above named shall, as aforesaid, become President, he shall not exercise the functions of any other public office of trust or profit while President, and shall, within thirty days thereafter, issue a proclamation to the people of the United States, and direct notice to be given that, in accordance with the provisions of the act of March, 1, 1792, electors of President and Vice-President of the United States shall be elected or appointed in the several States.

SECTION 2. That all laws inconsistent herewith are hereby repealed.

This substitute, as well as a less important amendment proposed, was lost, and then the motion to recommit was rejected. The final vote on the passage of the bill was as follows:

YEAS—C. H. Allen, C. M. Anderson, Arnot, Atkinson, Baker, Barbour, Barksdale, Barnes, Barry, Beach, Blanchard, Bland, Bliss, Blount, Boyle, Bragg, C. R. Breckinridge, W. C. P. Breckinridge, T. M. Browne, Buck, Butterworth, Bynum, Cabell, Caldwell, J. E. Campbell, T. J. Campbell, Candler, Catching, Clardy, Clements, Cobb, Cole, Collins, Comstock, Cowles, Cox, Crisp, Croxton, Culberson, Cutchen, Daniel, R. H. M. Davidson, Dawson, Dibble, Dockery, Dougherty, Dowdney, Dunn, Eden, Eldredge, Ellsberry, Elly, Ermentrout, Fisher, Foran, Ford, Forney, Frederick, Gallingher, Gay, Geddes, C. H. Gibson, Glass, W. J. Green, Hale, Hall, Halsell, Hammond, Harris, Hatch, Hayden, Heard, Hemphill, J. S. Henderson, Herbert, Herman, Hiestand, Hill, Hires, Hiscock, Hitt, Holman, Hutton, Irion, James, F. A. Johnson, T. D. Johnston, J. H. Jones, J. T. Jones, Ketcham, King, Kleiner, La Follette, Lanham, Le Fevre, Long, Lovering, Lowry, Mahoney, Markham, Martin, Matson, McAdoo, McComas, McCreary, McMillin, McRae, Merriman, Millard, Miller, Mills, Mitchell, Moffatt, Morgan, Morrison, Murphy, Neal, Nece, Negley, Norwood, Oates, O'Ferrall, Outhwaite, Payne, Peel, Perry, Pettibone, Pidcock, Pindar, Price, Reagan, J. W. Reid, Reese, Richardson, Riggs, Robertson, Rockwell, Rogers, Romeis, Sadler, Sayers, Scott, Scranton, Seney, Seymour, Shaw, Singleton, Sowden, Spriggs, Springer, Stahlnecker, Steele, Charles Stewart, St. Martin, W. J. Stone of Kentucky, W. J. Stone of Missouri, Strait, Struble, Swinburne, Swope, Symes, Talubee, J. M. Taylor, Tillman, Townshend, Trigg, Tucker, Turner, Van Eaton, Viele, Wade, Wakefield, J. H. Ward, T. B. Ward, A. J. Warner, William Warner, A. J. Weaver, J. B. Wheeler, Wilkins, Willis, Wilson, Winans, Wise, Wolford, Worthington—159.

NAYS—G. E. Adams, J. A. Anderson, Bayne, Bennett, Bound, Boutelle, Brady, C. E. Brown, W. W. Brown, Buchanan, Bunnell, Burrows, J. M. Campbell, Cannon, Caswell, Conger, Cooper, Davis, Dingley, Dorsey, Everhart, Farquhar, Felton, Fleeger, Fuller, Funston, Gilfillan, R. S. Green, Giovenor, Grout, Guenther, Hahn, Haynes, Hepburn, Hopkins, Houk, Jackson, J. T. Johnson, Lehlbach, Libbey, Little, Loutitt, Lyman, McKenna, McKinley, Miliken, Morrill, Morrow, Nelson, O'Donnell, Charles O'Neill, Osborne, Parker, Perkins, Peters, Pirce, Plumb, Ranney, Rowell, Ryan, Smalls, Spooner, Stephenson, J. W. Stewart, E. F. Stone, E. B. Taylor, I. H. Taylor, Zach. Taylor, J. R. Thomas, O. B. Thomas, Thompson, Van Shaick, Wadsworth, Weber, A. C. White, Milo White—76.

Not Voting—J. J. Adams, Aiken, J. M. Allen, Ballentine, Belmont, Bingham, Brumm, Burleigh, Burnes, Felix Campbell, Carleton, Compton, Crain, Curtin, Dargan, Davenport, A. C. Davidson, Dunham, Evans, Findlay, Eustace Gibson, Glover, Goff, Hamback, Harmer, D. B. Henderson, T. J. Henderson, Henley, Hewitt, Holmes, Howard, Kelley, Laffoon, Laird, Landes, Lawler, Lindsley, Lore, Maybury, Muller, O'Hara, J. J. O'Neill, Owen, Payson, Phelps, Pulitzer, Randall, Rankin, T. B. Reed, Rice, Sawyer, Sessions, Skinner, Snyder, Storm, Tarsney, Throckmorton, Wait, Wellborn, West, Whiting, Woodburn—62.

The President approved the bill, Jan. 19, 1886.

The Oleomargarine Law.—April 28, 1886, Mr. Hatch, of Missouri, from the Committee on Agriculture of the House of Representatives, reported a bill defining butter, and imposing a tax upon and regulating the manufacture, sale, importation, and exportation of oleomargarine. The measure was fully debated. Mr. Scott, of Pennsylvania, said in support of it: "It is needless for me to speak of the importance to a nation of throwing every pos-

sible safeguard about its agricultural interests. They who devote their entire lives to the production of those articles which are relied upon for the sustenance of the people have a primal right to make known their grievances and to persist in their appeals until at least a measure of relief is afforded. The farmer is never aggressive, but always patient. His hours of toil are not limited to the period between the rising and setting of the sun; he suffers hardships in his battles with Nature, but his struggles are the struggles of peace; he is always law-abiding, and never fractious. True to the independent characteristics of his calling, he is slow to invite others to his assistance; and when that appeal is made it should be answered with a promptness that attests the nation's confidence in his statements and appreciation of his worth. Within a period of less than ten years a gigantic traffic has grown up which has already displaced one fifth of the purest product of the dairy, and substituted therefor an article the ingredients of which are acknowledged to be not only offensive in their original character to human taste, but positively injurious to the public health. So rapidly has this traffic developed, and so vast have its proportions become, that State Legislatures have been powerless to arrest its growth, and the national Congress is finally appealed to to pass laws that shall at least check its further disastrous advance."

Touching the constitutional authority to levy the tax provided for in the bill he said:

"The Congress of the United States unquestionably possesses the right to tax any industry or any commodity, however innocent in its effects. The harmless article of salt, which enters so largely into the manufacture of butter, carries with it the enormous tax of 23¢ per cent., while whisky is taxed 90 cents per gallon, with the avowed object of restricting its sale because of the baneful influence which springs therefrom. There are those who favor the taxation of oleomargarine to the point of extermination, but with these I can not agree. If there are those who prefer oleomargarine to the genuine butter, the manufacturer should be allowed to supply that demand; but, in my judgment, he should be required to pay a tax sufficient at least to equalize the difference in the cost of producing the counterfeit and the cost of producing the genuine article which he seeks to imitate and displace."

Mr. Reagan, of Texas, in opposition to the measure, said: "If the object was to tax oleomargarine for revenue, it would be within the power of Congress to levy such a tax, but the object manifestly being to drive it out of existence, to destroy it as a product, there is, in my judgment, no power under the Constitution authorizing the passage of such a bill. We nowhere in the Constitution find any power authorizing Congress to destroy any product or to outlaw any article. There is no such power. The States may, if they see proper to do so, but

we have not been informed that any State has attempted to do it, and if the community suffers the injury which it is alleged grows out of the manufacture and use of oleomargarine, it is singular indeed that the people in the several States have not discovered that fact and applied the remedy which they clearly have the power to apply in such cases."

Mr. Hiscock, of New York, maintained the right of Congress to tax any industry either simply for revenue or for the protection of another: "I ask gentlemen upon the other side of the House, who always have or profess to have special charge of the Constitution, when has there ever been a time in the history of our country, when, for the purpose of taxation, we have not discriminated in favor of one industry and against another? It is conceded on all hands that under the taxing power we can tax the manufacture of any product out of existence, and where then is the ground for opposition to this bill? It has always been conceded by every statesman, or less, who has ever discussed a tax law, that it was proper to discriminate in favor of, protect, if you please, one industry if it needed it, as against another. This can not be disputed, and who challenges the assertion?

"Gentlemen have been appealed to and put upon their consciences and oaths, in delivering their votes upon this bill. Well, by our votes, one industry is to be stricken down; that great industry in favor of which three fourths of all the States have legislated—agriculture, an industry from which this country derives practically all of the wealth it has—or we are to foster and support it. What is asked? That in levying taxes we will give it incidental protection as against a compound which has been declared by those who have examined it to be vile in its component parts, and carrying with it the germs of insidious disease, a fraudulent, spurious article, which is palmed off upon the poor as an honest product of the dairy."

Mr. Curtin, of Pennsylvania, attacked both the principle and the policy of the bill: "I believe the whole system of internal taxation is wrong, unjust, and not needed by this Government, and I do most decidedly object to making any addition to it. And as to the quality of this food, after all, Mr. Chairman, it is the American man who must judge of what he shall eat and give to his family. The average American man is quite capable of judging whether butter made in this manner is good or bad for him—whether it is a wholesome article of food or whether it is a source of contagious disease. With my experience of life, I am willing to submit to every American citizen what is best for himself and family, and the Congress of the United States can neither regulate his independence of action nor appetite. I admit, however, that it is the right and duty of the Government to inquire into the wholesomeness of this food, and to make the

inquiry as strict as may be, but even if investigation shows that it is not fit food for the people, let us not attempt to destroy it by taxing it out of existence. The more you tax the American man the less he likes it. As to food, there is a great variety of taste. When I was abroad, I saw a man on the Neva, from the frozen regions of the North, eat a tallow-candle, and he looked as happy and cheerful and complacent, and smiled as pleasantly as my friend the gentleman from New York and my colleague from Pennsylvania would after an elaborate dinner at Delmonico's."

Mr. Tucker, of Virginia, conceding the power of Congress to levy the tax provided for in the bill, protested against perverting the powers given for one purpose to another: "I believe that Congress has the power to lay the tax on oleomargarine. For what purpose? To raise revenue. Can you use a power—I put it to any gentleman here who has ever been a trustee—can you use a power delegated to you as a trustee for a certain purpose for some other purpose that is denied to you in the trust? Can you use that as a weapon to destroy some industry that is not within your power, merely because you have that weapon to use for the purpose of raising revenue? The question to me is too plain. I do not mean to judge for any other man's conscience, but I mean to say that honestly I could not vote for such a use of the power, because to use a power given to me for one purpose in order to accomplish another purpose that I have no power to subserve is really dishonest. It is evading my constitutional obligation to exercise a power which was never given me for the purpose at all for the purpose of accomplishing an object not confined to me by the Constitution."

Mr. Henderson, of Iowa, argued that the levying of new tax was in some sort a financial necessity: "As will be seen, the Secretary of the Treasury estimates that there will be a deficit of \$24,589,000 on the 30th day of June, 1887, and he states in detail the basis for his conclusion. Now, this is not any rambling statement. It is a careful official estimate submitted by the official financial head of the republic. In addition to that, this Congress, with a patriotism that I commend, has added to the pensions of the widows and orphans of the Union soldier \$6,000,000 per annum, not taken into account by the Secretary of the Treasury, but which will be added to the expenses of the Government, thus raising the amount of the deficit to \$30,000,000. Then, if the Mexican pension bill goes through the Senate as it has gone through the House, we shall have from forty to fifty millions more to pay. I need not call the attention of the House to the fact that we have a vast debt still unpaid, that we have appealing rivers and harbors, that public buildings are needed—nearly every State demanding them—until we are afraid we have not money enough to give all that is needed. I need not remind this Chamber that the Army

of the United States has been reduced to a platoon, and the Navy to a naked flag-staff. I do not need to remind this Chamber that we have no merchant marine; and let it not be forgotten that the idol of one great party in this nation, "the Old Sage of Gramercy," has counseled and appealed for the expenditure of millions for our coast-defenses. We stand to-day a stingy and cramped nation in regard to many needed expenditures; and I say, with Secretary Manning, that we do need this money." He declared, moreover, that it was not of any practical importance whether the law was passed to raise revenue or to crush out a particular branch of industry, since the real purpose in passing it could not be separated from the professed purpose: "The judicial power dare not enter the chamber of the lawmaker's mind to find motives for the passage of a law, but is bound to accept the law itself for that guide. We have a right under the Constitution to levy and collect taxes. Here we are deciding whether it is necessary or not to do that. We exercise the power; and the mode of its exercise can not be questioned by the highest judicial tribunal in the republic. I say, then, it is a waste of time to discuss this bill from a constitutional standpoint." Mr. Henderson also dwelt at length upon the excellence of butter and the filthiness of oleomargarine, and produced a formidable mass of figures to show how seriously the manufacture of the latter was affecting the agricultural interest of the country.

Perhaps the best statement made in behalf of the bill, however, is embodied in the report of the Committee on Agriculture. As to the constitutionality of the measure the report said:

The power of the Federal Government to impose an internal-revenue tax upon the manufactured compounds sold as imitations and counterfeits of butter, as enumerated in the second section of the substitute bill reported by the committee, is too well established by a long line of precedents to require any argument; indeed, as far as your committee are advised, this power is unquestioned and universally conceded by those who deny the necessity or expediency of such a tax. This power to tax is not limited alone to the necessities of the Government for the amount of revenue derived. It has been invoked in more than one instance to provide for the general welfare and sustained by the highest judicial tribunal of the land. It is contended by some that the tax on oleomargarine, as defined in the bill, is excessive, and is advocated for the purpose of destroying or impairing its manufacture and sale, and is, therefore, beyond the constitutional power of Congress. It is a sufficient answer to this to say that, the power to tax being conceded, there is no limitation to its exercise except the discretion and wisdom of Congress.

As to the necessity for the proposed legislation the report said:

We find that there are in the United States over 15,000,000 cows, producing annually over 1,000,000,000 pounds of butter and 300,000,000 pounds of cheese, and that the product is worth \$250,000,000; that about an equal amount of milk is consumed as milk, so that the product of the dairy interest of the United States is worth \$500,000,000; that cows were worth on an average \$40 per head until the introduction of counterfeit butter, and are now worth but \$30 each, mak-

ing a total loss of \$150,000,000 in milk-cattle alone; that during last year there were slaughtered in Chicago alone about 300,000 milk-cows, or an average of about 1,000 per day; that there are from four to five million American citizens engaged in the dairy business, and that they must all abandon it and be driven into some other already overworked branch of industry unless they can be relieved from the present ruinous competition with cheap imitations of butter and cheese; that the dairy interest is a necessity to all other branches of agriculture, as it is the cheapest and most reliable means of producing or continuing the conditions of soil necessary to the production of crops of grain and grass; that the cost of producing the usual imitations of butter is from seven to eight cents a pound, and the cost to the consumer has been and is about equal with the price of genuine butter; that such imitations are not only disastrous to the dairy interest directly and to all branches of agriculture indirectly, but that they are detrimental to public health, being the fruitful cause of dyspepsia and other diseases; that among the articles and ingredients used in the manufacture of such imitations there are the following: Nitric acid, sugar of lead, sulphate of lime, benzoic acid, butyric acid, glycerine, capric acid, commercial sulphuric acid, tallow, butyric ether, castor-oil, caul, gastric juice, curcumin, chloride of potash, peroxide of magnesia, nitrate of soda, dry-blood albumen, saltpeter, borax, orris-root, bicarbonate of soda, caprylic acid, sulphite of soda, pepsin, lard, caustic potash, chalk, oil of sesame (or benne), turnip-seed oil, oil of sweet almonds, stomach of pigs, sheep, or calves, mustard-seed oil, bicarbonate of potash, boracic acid, salicylic acid, cotton-seed oil, alum, cows' udders, sal-soda, farinaceous flour, carabolic acid, slippery-elm bark, olive-oil, bromo-chloralum, oil of peanuts, sugar, caustic soda.

The bill passed the House, June 3, as follows:

Be it enacted, etc., That, for the purposes of this act, the word "butter" shall be understood to mean the food-product usually known as butter, and which is made exclusively from milk or cream, or both, with or without common salt, and with or without additional coloring-matter.

Sec. 2. That, for the purposes of this act, certain manufactured substances, certain extracts, and certain mixtures and compounds, including such mixtures and compounds with butter, shall be known and designated as "oleomargarine," namely: All substances heretofore known as oleomargarine, olio, oleomargarine-oil, butterine, lardine, suine, and neutral; all mixtures and compounds of oleomargarine, olio, oleomargarine-oil, butterine, lardine, suine, and neutral; all lard extracts and tallow extracts; and all mixtures and compounds of tallow, beef-fat, suet, lard, lard-oil, vegetable-oil, annatto, and other coloring-matter, intestinal fat, and offal-fat made in imitation or semblance of butter, or calculated or intended to be used as butter or for butter.

Sec. 3. That special taxes are imposed as follow: Manufacturers of oleomargarine shall pay \$600. Every person who manufactures oleomargarine for sale shall be deemed a manufacturer of oleomargarine.

Wholesale dealers in oleomargarine shall pay \$480. Every person who sells or offers for sale oleomargarine in the original manufacturer's packages shall be deemed a wholesale dealer in oleomargarine. But any manufacturer of oleomargarine who has given the required bond and paid the required special tax, and who sells only oleomargarine of his own production at the place of manufacture in the original packages to which the tax-paid stamps are affixed, shall not be required to pay the special tax of a wholesale dealer in oleomargarine on account of such sales.

Retail dealers in oleomargarine shall pay \$48. Every person who sells oleomargarine in less quantities than ten pounds at one time shall be regarded as a retail dealer in oleomargarine. And sections 3232, 3233, 3234, 3235, 3236, 3237, 3238, 3239, 3240, 3241, and 3243

of the Revised Statutes of the United States are, so far as applicable, made to extend to and include and apply to the special taxes imposed by this section and to the persons upon whom they are imposed: *Provided*, That in case any manufacturer of oleomargarine commences business subsequent to the 30th day of June in any year, the special tax shall be reckoned from the 1st day of July in that year, and shall be \$500.

SEC. 4. That every person who carries on the business of a manufacturer of oleomargarine without having paid the special tax therefor as required by law, shall, besides being liable to the payment of the tax, be fined not less than one thousand and not more than five thousand dollars; and every person who carries on the business of a wholesale dealer in oleomargarine without having paid the special tax therefor as required by law, shall, besides being liable to the payment of the tax, be fined not less than five hundred nor more than two thousand dollars; and every person who carries on the business of a retail dealer in oleomargarine without having paid the special tax therefor as required by law, shall, besides being liable to the payment of the tax, be fined not less than fifty nor more than five hundred dollars for each and every offense.

SEC. 5. That every manufacturer of oleomargarine shall file with the collector of internal revenue of the district in which his manufactory is located such notices, inventories, and bonds, and shall keep such books and render such returns of materials and products, shall put up such signs and affix such number to his factory, and conduct his business under such surveillance of officers and agents as the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, may by regulation require. But the bond required by such manufacturer shall be with sureties satisfactory to the Collector of Internal Revenue, and in a penal sum of not less than \$5,000; and the sum of said bond may be increased from time to time and additional sureties required at the discretion of the collector or under instructions of the Commissioner of Internal Revenue.

SEC. 6. That all oleomargarine shall be packed by the manufacturer thereof in firkins, tubs, or other wooden packages not before used for that purpose, each containing not less than ten pounds, and marked, stamped, and branded as the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, shall prescribe; and all sales made by manufacturers of oleomargarine and wholesale dealers in oleomargarine shall be in original stamped packages. Retail dealers in oleomargarine must sell only from original stamped packages, in quantities not exceeding ten pounds, and shall pack the oleomargarine sold by them in suitable wooden or paper packages, which shall be marked and branded as the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, shall prescribe. Every person who sells or offers for sale, or delivers or offers to deliver, any oleomargarine in any other form than in new wooden or paper packages above described, or who packs in any package any oleomargarine in any manner contrary to law, or who falsely brands any package, or affixes a stamp on any package denoting a less amount of tax than that required by law, shall be fined for each offense not less than \$100 nor more than \$1,000, and be imprisoned not less than six months nor more than two years.

SEC. 7. That every manufacturer of oleomargarine shall securely affix, by pasting on each package containing oleomargarine manufactured by him, a label on which shall be printed, besides the number of the manufactory and the district and State in which it is situated, these words: "Notice.—The manufacturer of the oleomargarine herein contained has complied with all the requirements of law. Every person is cautioned not to use either this package again or the stamp thereon again, nor to remove the contents of this package without destroying said stamp, under the penalty provided by law in such cases." Every

manufacturer of oleomargarine who neglects to affix such label to any package containing oleomargarine made by him, or sold or offered for sale by or for him, and every person who removes any such label so affixed from any such package, shall be fined \$50 for each package in respect to which such offense is committed.

SEC. 8. That upon oleomargarine which shall be manufactured and sold, or removed for consumption or use, there shall be assessed and collected a tax of five cents per pound, to be paid by the manufacturer thereof; and any fractional part of a pound in a package shall be taxed as a pound. The tax levied by this section shall be represented by coupon stamps; and the provisions of existing laws governing the engraving, issue, sale, accountability, effacement, and destruction of stamps relating to tobacco and snuff, as far as applicable, are hereby made to apply to stamps provided for by this section.

SEC. 9. That whenever any manufacturer of oleomargarine sells, or removes for sale or consumption, any oleomargarine upon which the tax is required to be paid by stamps, without the use of the proper stamps, it shall be the duty of the Commissioner of Internal Revenue, within a period of not more than two years after such sale or removal, upon satisfactory proof, to estimate the amount of tax which has been omitted to be paid, and to make an assessment therefor and certify the same to the collector. The tax so assessed shall be in addition to the penalties imposed by law for such sale or removal.

SEC. 10. That all oleomargarine imported from foreign countries shall, in addition to any import duty imposed on the same, pay an internal-revenue tax of fifteen cents per pound, such tax to be represented by coupon stamps as in the case of oleomargarine manufactured in the United States. The stamps shall be affixed and canceled by the owner or importer of the oleomargarine while it is in the custody of the proper custom-house officers; and the oleomargarine shall not pass out of the custody of said officers until the stamps have been so affixed and canceled, but shall be put up in wooden packages, each containing not less than ten pounds, as prescribed in this act for oleomargarine manufactured in the United States, before the stamps are affixed; and the owner or importer of such oleomargarine shall be liable to all the penal provisions of this act prescribed for manufacturers of oleomargarine manufactured in the United States. Whenever it is necessary to take any oleomargarine so imported to any place other than the public stores of the United States for the purpose of affixing and canceling such stamps, the collector of customs of the port where such oleomargarine is entered shall designate a bonded warehouse to which it shall be taken, under the control of such customs officer as such collector may direct; and every officer of customs who permits any such oleomargarine to pass out of his custody or control without compliance by the owner or importer thereof with the provisions of this section relating thereto, shall be guilty of a misdemeanor, and shall be fined not less than \$1,000 nor more than \$5,000, and imprisoned not less than six months nor more than three years. Every person who sells or offers for sale any imported oleomargarine, or oleomargarine purporting or claimed to have been imported, not put up in packages and stamped as provided by this act, shall be fined not less than \$500 nor more than \$5,000, and be imprisoned not less than six months nor more than two years.

SEC. 11. That every person who purchases or receives for sale any oleomargarine which has not been branded or stamped according to law, shall be liable to a penalty of \$50 for each such offense.

SEC. 12. That every person who purchases or receives for sale any oleomargarine from any manufacturer who has not paid the special tax shall be liable for each offense to a penalty of \$100 and to a forfeiture of all articles so purchased or received, or of the full value thereof.

SEC. 13. That whenever any stamped package containing oleomargarine is emptied, it shall be the duty of the person in whose hands the same is to destroy utterly the stamps thereon; and any person who willfully neglects or refuses so to do shall for each such offense be fined not exceeding \$50, and imprisoned not less than ten days nor more than six months. And any person who fraudulently gives away or accepts from another, or who sells, buys, or uses for packing oleomargarine any such stamped package, shall for each such offense be fined not exceeding \$100, and be imprisoned not more than one year. Any revenue officer may destroy any emptied oleomargarine package upon which the tax-paid stamp is found.

SEC. 14. That there shall be in the office of the Commissioner of Internal Revenue an analytical chemist and a microscopist, who shall each be appointed by the Secretary of the Treasury, and shall each receive a salary of \$2,500 per annum; and the Commissioner of Internal Revenue may, whenever in his judgment the necessities of the service so require, employ chemists and microscopists, to be paid such compensation as he may deem proper, not exceeding in the aggregate any appropriation made for that purpose. And such Commissioner is authorized to decide what substances, extracts, mixtures, or compounds which may be submitted for his inspection in contested cases are to be taxed under this act; and his decision in matters of taxation under this act shall be final. The Commissioner may also decide whether any substance made in imitation or semblance of butter, and intended for human consumption, contains ingredients deleterious to the public health; but in case of doubt or contest his decisions in this class of cases may be appealed from to a board hereby constituted for the purpose, and composed of the Surgeon-General of the Army, the Surgeon-General of the Navy, and the Commissioner of Agriculture; and the decisions of this board shall be final in the premises.

SEC. 15. That all packages of oleomargarine subject to tax under this act that shall be found without stamps or marks as herein provided, and all oleomargarine intended for human consumption which contains ingredients adjudged as hereinbefore provided, to be deleterious to the public health, shall be forfeited to the United States. Any person who shall willfully remove or deface the stamps, marks, or brands on packages containing oleomargarine taxed as provided herein shall be guilty of a misdemeanor, and shall be punished by a fine of not less than \$100 nor more than \$2,000, and by imprisonment for not less than thirty days nor more than six months.

SEC. 16. That oleomargarine may be removed from the place of manufacture for export to a foreign country without payment of tax or affixing stamps thereto, under such regulations and the filing of such bonds and other security as the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, may prescribe. Every person who shall export oleomargarine shall brand upon every tub, firkin, or other package containing such article the word "oleomargarine," in plain Roman letters not less than one half inch square.

SEC. 17. That whenever any person engaged in carrying on the business of manufacturing oleomargarine defrauds, or attempts to defraud, the United States of the tax on the oleomargarine produced by him, or any part thereof, he shall forfeit the factory and manufacturing apparatus used by him, and all oleomargarine and all raw material for the production of oleomargarine found in the factory and on the factory premises, and shall be fined not less than \$500 nor more than \$5,000, and be imprisoned not less than six months nor more than three years.

SEC. 18. That if any manufacturer of oleomargarine, any dealer therein, or any importer or exporter thereof shall knowingly or willfully omit, neglect, or refuse to do or cause to be done any of the things required by law in the carrying on or conducting of his

business, or shall do anything by this act prohibited, if there be no specific penalty or punishment imposed by any other section of this act for the neglecting, omitting or refusing to do, or for the doing or causing to be done, the thing required or prohibited, he shall pay a penalty of \$1,000; and if the person so offending be the manufacturer of or a wholesale dealer in oleomargarine, all the oleomargarine owned by him, or in which he has any interest as owner, shall be forfeited to the United States.

Sec. 19. That all fines, penalties, and forfeitures imposed by this act may be recovered in any court of competent jurisdiction.

Sec. 20. That the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, may make all needful regulations for carrying into effect of this act.

Sec. 21. That this act shall go into effect on the ninetieth day after its passage; and all wooden packages containing ten or more pounds of oleomargarine found on the premises of any dealer on or after the ninetieth day succeeding the date of the passage of this act shall be deemed to be taxable under section 8 of this act, and shall be taxed, and shall have affixed thereto the stamps, marks, and brands required by this act or by regulations made pursuant to this act; and for the purposes of securing the affixing of the stamps, marks, and brands required by this act, the oleomargarine shall be regarded as having been manufactured and sold, or removed from the manufactory for consumption or use, on or after the day this act takes effect; and such stock on hand at the time of the taking effect of this act may be stamped, marked, and branded under special regulations of the Commissioner of Internal Revenue, approved by the Secretary of the Treasury; and the Commissioner of Internal Revenue may authorize the holder of such package to mark and brand the same and to affix thereto the proper tax-paid stamps.

In the bill, as originally reported, the tax per pound on oleomargarine was fixed at 10 cents. An amendment reducing the sum to 8 cents was reported from the Committee of the Whole, and a motion to reduce the amount to 5 cents was finally carried—yeas 153, nays 122. A motion to make the tax 3 cents, failed by a vote of 130 to 140. An amendment proposed by Mr. Browne, of Indiana, exempting from the tax all oleomargerine purely made and sold undisguised, was defeated by a vote of 118 to 152. An amendment offered by Mr. Mills, of Texas, providing for an income-tax, was rejected by a vote of 83 to 188. Various amendments, intended to ridicule the bill, were offered—such as propositions to tax makers of glass eggs, incubators, and chickens hatched in them, shoes with paper in the soles, and all manner of fraudulent articles.

The vote in the House on the passage of the measure was as follows:

YEAS—G. E. Adams, C. H. Allen, J. M. Allen, J. A. Anderson, Atkinson, Baker, Ballentine, Barksdale, Barry, Bayne, Beach, Bingham, Bland, Bound, Bou-telle, Brady, C. E. Brown, W. W. Brown, Buchanan, Buck, Bunnell, Burleigh, Burrows, Butterworth, Bynum, Caldwell, J. E. Campbell, J. M. Campbell, Cannon, Carleton, Caswell, Clardy, Comstock, Conger, Davenport, Dawson, Dingley, Dockery, Dorsey, El-dredge, Ellsberry, Ely, Ermentrout, Evans, Everhart, Farquhar, Felton, Fleeger, Foran, Frederick, Fuller, Funston, Gallinger, Geddes, C. H. Gibson, Gilfillan, W. J. Green, Grout, Hale, Halsell, Hanbach, Hatch, Haynes, Heard, D. B. Henderson, T. J. Henderson, Henley, Hepburn, Hermann, Hil, Hires, Hiscock, Hitt, Holman, Holmes, Hopkins, Howard, Jackson,

James, F. A. Johnson, J. T. Johnston, Ketcham, King, Kleiner, La Follette, Landes, Le Fevre, Linds-ley, Little, Long, Lore, Loultit, Lowry, Lyman, Mat-son, McCornas, McCreary, McKenna, McKinley, Mil-lard, Milliken, Moffatt, Morgan, Morrill, Morrow, Muller, Murphy, Neece, Nelson, O'Donnell, O'Fer-rall, Osborne, Outhwaite, Parker, Payne, Payson, Perkins, Peters, Pettibone, Phelps, Pidcock, Pindar, Plumb, Price, Randall, Reese, Rice, Richardson, Riggs, Robertson, Rockwell, Romeis, Rowell, Ryan, Sawyer, Scott, Scranton, Seney, Sessions, Seymour, Shaw, Singleton, Smalls, Sowden, Spriggs, Springer, Stahlhecker, Steele, Stephenson, J. W. Stewart, E. F. Stone, W. J. Stone of Kentucky, Storm, Strait, Struble, Swope, Symes, E. B. Taylor, I. H. Taylor, J. R. Thomas, O. B. Thomas, Thompson, Townshend, Wade, Wait, Wakefield, T. B. Ward, A. J. Weaver, J. B. Weaver, Weber, West, A. C. White, Milo White, Whiting, Wilkins, Winans, Wolford, Worth-ington—177.

NAYS—J. J. Adams, Barbour, Barnes, Bennet, Blanchard, Blount, C. R. Breckinridge, W. C. P. Breckinridge, T. M. Browne, Burnes, Cabell, Felix Campbell, T. J. Campbell, Candler, Catchings, Cobb, Collins, Cowles, Cox, Crain, Crisp, Culberson, Curtin, Daniel, Dargan, A. C. Davidson, Dibble, Dough-erty, Dowdney, Dunham, Dunn, Fisher, Ford, Forney, Gay, Eustace Gibson, Glass, Hammond, Harris, Hemphill, J. S. Henderson, Herbert, Hewitt, Houk, Hutton, Irion, T. D. Johnston, J. H. Jones, J. T. Jones, Kelley, Lanham, Lawler, Lehlbach, Libbey, Lovering, Mahoney, Martin, Maybury, McAdoo, Mc-Millin, McRae, Merriman, Miller, Mills, Mitchell, Morrison, Neal, Negley, Norwood, Oates, O'Hara, Charles O'Neill, J. J. O'Neill, Peel, Perry, Reagan, Sayers, Skinner, Snyder, Spooner, St. Martin, Tarn-ney, Tabbee, J. M. Taylor, Zachary Taylor, Throck-morton, Tillman, Tucker, Turner, Van Eaton, Van Schaick, Wadsworth, Wallace, J. H. Ward, William Warner, Wellborn, Wheeler, Willis, Wilson, Wise, Woodburn—101.

Nor VOTING—Aiken, C. M. Anderson, Arnot, Bel-mont, Bliss, Boyle, Bragg, Brumm, Clements, Cole, Compton, Cooper, Croxton, Cutcheon, R. H. M. Da-vidson, Davis, Eden, Findlay, Glover, Goff, R. S. Green, Grosvenor, Guenther, Hall, Harmer, Hayden, Hiestand, Hudd, Lafoon, Laird, Markham, Owen, Pirce, Ranney, T. B. Reed, J. W. Reid, Rogers, Sad-ler, Charles Stewart, W. J. Stone of Missouri; Swin-burne, Trigg, Viele, A. J. Warner—45.

In the Senate, June 7, the bill was referred to the Committee on Agriculture and Forestry, though there was a sharp contest to have it referred to the Committee on Finance, as a revenue measure. On July 1 it was reported back without amendment by Senator Miller, of New York, who made the most elaborate argument in its favor. He acknowledged that the purpose of the bill was not to raise reve-nue, and based his advocacy of it on the follow-ing grounds:

“1. It is necessary in order to protect the whole people from fraud and imposition in having a counterfeit article sold to them for the genuine.

“2. It is necessary to protect the public health, for if it be admitted that oleo when made according to the process known as the Mége process is wholesome, yet I hold that the best of it, made as it is made to-day, is not as wholesome as butter, and that it may be the means of communicating disease to the human system.

“3. It is necessary to protect the chief farm-ing interest of this country, which is the dairy,

from unjust and fraudulent competition and consequent loss, if not absolute ruin.

"4. This legislation is necessary because the States have not been able thus far to either suppress or properly control the great evil of which I have spoken, and as sufficient remedy can be found nowhere, in my judgment, save under the Federal Government."

The argument in opposition to the bill was based mainly on the theory that, if it was not a revenue measure, there was no constitutional authority for passing it, and upon the fact that no new revenue bill was needed.

The measure was amended by making the tax per pound on oleomargarine provided for in Section 8, two cents instead of five. The vote on the adoption of this amendment was 33 yeas to 28 nays. Among the amendments proposed and rejected was one prepared by Senator Butler, of South Carolina, in the nature of the original bill, applying all of its provisions to the traffic in impure liquors.

The bill passed the Senate, on July 20, by the following vote:

YEAS—Aldrich, Allison, Blackburn, Blair, Camden, Cameron, Chace, Cockrell, Conger, Cullum, Dawes, Dolph, Edmunds, Evarts, Gorman, Hale, Harrison, Hawley, Hoar, Ingalls, Logan, McMillan, Mahone, Manderson, Miller, Mitchell of Oregon, Palmer, Payne, Platt, Plumb, Sawyer, Sewell, Sherman, Spooner, Stanford, Teller, Wilson of Iowa—37.

NAYS—Beck, Berry, Brown, Butler, Call, Coke, Colquitt, Eustis, Gibson, Gray, Hampton, Harris, Hearst, Jones of Arkansas, Maxey, Pugh, Ransom, Riddleberger, Vance, Vest, Voorhees, Walthall, Whithorne, Wilson of Maryland—24.

ABSENT—Bowen, Fair, Frye, George, Jones of Florida, Jones of Nevada, Kenna, McPherson, Mitchell of Pennsylvania, Morgan, Morrill, Pike, Sabin, Saulsbury, Van Wyck—15.

On July 23 the House concurred in the Senate amendments, and on August 2 the President approved of the measure.

Suspensions from Office.—One of the most important political incidents of the session was the controversy between the President and the Senate, over the right of that body to information on file in the departments in regard to suspensions from office. Issue was joined on the case of George M. Duskin, District Attorney of the Southern District of Alabama. The President suspended him from office July 17, 1885, and on the same day designated John D. Burnett to perform the duties of the office. December 14, 1885, the President nominated Burnett to be District Attorney of the Southern District of Alabama in place of Duskin, suspended. The nomination was referred to the Committee on the Judiciary of the Senate, and Feb. 18, 1886, the majority of the committee, through its chairman, Senator Edmunds, made a report in which the foregoing facts were first set forth. The report then went on to say:

Since the passage of the act of March 2, 1867, "regarding the tenure of certain civil offices," it has been the practice of the Committee on the Judiciary whenever a nomination has been made proposing the removal from office of one person and the appointment of another to address a note to the head of the de-

partment having such matters in charge (usually the Attorney-General), asking that all papers and information in the possession of the department touching the conduct and administration of the officer proposed to be removed and touching the character and conduct of the person proposed to be appointed be sent to the committee for its information. This practice has through all Administrations been carried on with the unanimous approval of all the members of the committee, although the composition of the committee has been during this period sometimes of one political character and sometimes of another. In no instance, until this time, has the committee met with any delay or denial in respect of furnishing such papers and information, with a single exception, and in which exception the delay and suggested denial lasted for only two or three days.

The committee has thus hitherto been enabled to know the character and quality of the administration of the office in charge of the incumbent proposed to be removed as well as the character and quality of the person proposed to be appointed, so far as the papers in the department could furnish information in regard thereto.

In the instance now particularly under consideration the committee, according to its standing course, on Dec. 26, 1885, through its chairman, addressed a note to the Attorney-General in the same form and asking for the same papers and information that it had been accustomed to do. After sundry delays and explanations it became evident to the committee that it could not by this informal method obtain an inspection of the papers and documents in the Department of Justice bearing upon the subject. It accordingly, on the 25th of January, 1886, reported to the Senate for its adoption a resolution in the following words:

"Resolved, That the Attorney-General of the United States be and he hereby is directed to transmit to the Senate copies of all documents and papers that have been filed in the Department of Justice since the 1st day of January, A. D. 1885, in relation to the management and conduct of the office of District Attorney of the United States of the Southern District of Alabama," which on the next day was adopted by the Senate without a division.

The Attorney-General, on the 1st day of February, 1886, sent to the Senate a communication in the following words:

DEPARTMENT OF JUSTICE, January 28, 1886.
The PRESIDENT pro tempore of the Senate of the United States:

I acknowledge the receipt of a resolution of the Senate, adopted on the 25th instant in executive session, as follows:

"Resolved, That the Attorney-General of the United States be and he hereby is directed to transmit to the Senate copies of all documents and papers that have been filed in the Department of Justice since the 1st day of January, A. D. 1885, in relation to the management and conduct of the office of District Attorney of the United States of the Southern District of Alabama."

In response to the said resolution the President of the United States directs me to say that the papers which were in this department relating to the fitness of John D. Burnett, recently nominated to said office, having been already sent to the Judiciary Committee of the Senate, and the papers and documents which are mentioned in the said resolution and still remaining in the custody of this department, having exclusive reference to the suspension by the President of George M. Duskin, the late incumbent of the office of District Attorney of the United States for the Southern District of Alabama, it is not considered that the public interest will be promoted by a compliance with said resolution and the transmission of the papers and documents therein mentioned to the Senate in executive session.

Very respectfully, your obedient servant,
A. H. GARLAND, Attorney-General.

This letter, although in response to the direction of the Senate that copies of any papers bearing on the subject within a given period of time be transmitted, assumes that the Attorney-General of the United States is the servant of the President, and is to give or withhold copies of documents in his office according to the will of the Executive and not otherwise.

Your committee is unable to discover, either in the original act of 1789 creating the office of Attorney-General or in the act of 1870 creating the department of Justice, any provision which makes the Attorney-General of the United States in any sense the servant of or controlled by the Executive in the performance of the duties imputed to him by law or the nature of his office. It is true that in the creation of the Department of State, of War, and of the Navy, it was provided in substance that these Secretaries should perform such duties as should from time to time be enjoined upon them by the President, and should conduct the business of their departments in such manner as the President should direct, but the committee does not think it important to the main question under consideration that such direction is not to be found in the statute creating the Department of Justice, for it is thought it must be obvious that the authority intrusted by the statute in these cases to the President to direct and control the performance of duties was only a superintending authority to regulate the performance of the duties that the law required, and not to require the performance of duties that the laws had not devolved upon the heads of departments, and not to dispense with or forbid the performance of such duties according as it might suit the discretion or the fancy of the Executive. The Executive is bound by the Constitution and by his oath to take care that the laws be faithfully executed, and he is himself as much bound by the regulations of law as the humblest officer in the service of the United States, and he can not have authority to undertake to faithfully execute the laws, whether applied to his own special functions or those of the departments created by law, otherwise than by causing, so far as he lawfully may and by lawful methods, the heads of departments and other officers of the United States to do the duties which the law, and not his will, has imputed to them.

The important question, then, is whether it is within the constitutional competence of either House of Congress to have access to the official papers and documents in the various public offices of the United States created by laws enacted by themselves. It may be fully admitted that, except in respect of the Department of the Treasury, there is no statute which commands the head of any department to transmit to either House of Congress on its demand any information whatever concerning the administration of his department; but the committee believes it to be clear that from the very nature of the powers intrusted by the Constitution to the two Houses of Congress it is a necessary incident that either House must have at all times the right to know all that officially exists or takes place in any of the departments of the Government. So perfectly was this proposition understood before and at the time of the formation of the Constitution, that the Continental Congress, before the adoption of the present Constitution, in establishing a department of foreign affairs, and providing for a principal officer thereof, thought it fit to enact that all books, records, and other papers in that office should be open to the inspection of any member of Congress, provided that no copy should be taken of matters of secret nature without special leave of Congress. It was not thought necessary to enact that the Congress itself should be entitled to the production and inspection of such papers, for that right was supposed to exist in the very nature of things; and when under the Constitution the department came to be created, although the provision that each individual member of Congress should have access to the papers was omitted (evidently for reasons that can now be quite

well understood) it was not thought necessary that an affirmative provision should be inserted giving to the Houses of Congress the right to know the contents of the public papers and records in the public offices of the country whose laws and whose offices they were to assist in creating.

It is believed that there is no instance of civilized governments having bodies representative of the people or of states in which the right and the power of those representative bodies to obtain in one form or another complete information as to every paper and transaction in any of the executive departments thereof does not exist, even though such papers might relate to what is ordinarily an executive function, if that function impinged upon any duty or function of the representative bodies. A qualification of this general right may, under our Constitution, exist in the case of calls by the House of Representatives for papers relating to treaties, etc., under consideration and not yet disposed of by the President and Senate.

The committee feels authorized to state, after a somewhat careful research, that within the foregoing limits there is scarcely in the history of this Government until now any instance of a refusal by a head of a department, or even of the President himself, to communicate official facts and information as distinguished from private and unofficial papers, motions, views, reasons, and opinions, to either House of Congress when unconditionally demanded. Indeed, the early Journals of the Senate show great numbers of instances of directions to the heads of departments, as, of course, to furnish papers and reports upon all sorts of affairs both legislative and executive.

The instances of requests to the President and commands to the heads of departments by each House of Congress from those days until now, for papers and information on every conceivable subject of public affairs, are almost innumerable; for it appears to have been thought by all the Presidents who have carried on the Government now for almost a century that even in respect of requests to them, an independent and co-ordinate branch of the Government, they were under a constitutional duty and obligation to furnish to either House the papers called for, unless, as has happened in very rare instances, when the request was coupled with an appeal to the discretion of the President in respect of the danger of publicity to send the papers if, in his judgment, it should not be incompatible with the public welfare.

The report, after giving a number of these precedents, proceeded as follows:

But it would seem to be needless to array further precedents out of the vast mass that exists in the Journals of the Houses covering probably every year of the existence of the Government. The practical construction of the Constitution in these respects by all branches of the Government for so long a period would seem upon acknowledged principles to settle what are the rights and powers of the two Houses of Congress in the exercise of their respective duties covering every branch of the operations of the Government, and it is submitted with confidence that such rights and powers are indispensable to the discharge of their duties and do not infringe any right of the Executive, and that it does not belong to either heads of departments or to the President himself to take into consideration any supposed motives or purposes that either House may have in calling for such papers, or whether their possession or knowledge of their contents could be applied by either House to useful purposes.

The Constitution of the United States was adopted in the light of the well-known history that even ministers of the English Crown were bound to lay before Parliament all papers when demanded on pain of the instant dismissal of such ministers on refusal, through the rapid and effectual instrumentalities of a vote of want of confidence. And the Continental Congress had for more than ten years itself governed the coun-

try, and had control of all papers and records, not by reason of anything expressed in the Articles of Confederation, but by reason of the intrinsic nature of free government. The jurisdiction of the two Houses of Congress to legislate and the power to advise or withhold advice concerning treaties and appointments necessarily involves the jurisdiction to officially know every step and action of the officers of the law, and all the facts touching their conduct in the possession of any department or even in the possession of the President himself. There was no need to express such a power, for it was necessarily an inherent incident to the exercise of the powers granted.

It will be observed that in this instance the call for papers covered a period of more than six months, during which the regular incumbent of the office had been discharging its duties, and also the further period of more than six months, during which the person designated to discharge those duties on suspension of the officer had been acting, and that that person is the one now proposed to be appointed to the place.

It will also be observed that the President has not undertaken to remove the incumbent of the office, but has only, in expressed and stated pursuance of the statutes on the subject, suspended that officer, and that the same statutes expressly provide that such officer shall not be removed without the advice and consent of the Senate, and that, if that advice and consent be not given, the incumbent would (unless his regular term of office should have previously expired) at the close of this session of the Senate be restored to the lawful right to exercise its duties. The Senate, then, by this nomination is asked to advise and consent to the removal of the incumbent and to the appointment of the candidate proposed for his place. In exercising its duty in respect of these questions it is plain that the conduct and management of the incumbent is a matter absolutely essential to be known to the Senate, in order that it may determine whether it can rightly advise his removal or rightly leave him to resume the functions of his office at the end of its session, as well as whether the candidate proposed has in the exercise of the office under his designation so conducted himself as to show that he is competent and faithful. Indeed, it may be stated with entire accuracy that even in the case of a vacancy in an office and the proposed filling of such vacancy it is important for the Senate to know the previous condition and management of the office, the state of its affairs; whether there have been cases of misconduct or abuse of powers, the embezzlement of money, and indeed all the circumstances bearing upon its administration, in order that it may judge of the suitability of appointing a particular person to take up its duties with reference to the difficulties that may exist in its affairs, the state of the accounts, and everything concerning its administration, so as to measure the fitness and competency of the particular candidate to meet the emergencies of the case.

It appears from the table herewith submitted that out of about fourteen hundred and eighty-five nominations sent to the Senate during the first thirty days of this session, that is, from the first Monday in December, 1885, to the 5th of January, 1886, six hundred and forty-three were nominations of persons proposed to be appointed in the place of officers suspended and proposed to be removed (and of whom it is known that some are soldiers), and in respect of whom the action of the Senate in advising and consenting to the proposed appointment would effect a removal and in respect of whom the failure of the Senate to advise and consent to such removals and appointments the effect would be to restore them to the possession of their offices at the end of the session, except in cases in which the terms of some of them should have previously expired.

Is it not desirable and necessary to the proper performance of its duties and in every aspect of the public interest that the simple facts in regard to what the conduct of these officials as well as in regard to what

the conduct of the persons designated to perform their duties has been should be made known to the Senate? Have these suspended officials, or any considerable number of them, been guilty of misconduct in office, or of any personal conduct making them unworthy to be longer trusted with the performance of duties imposed upon them by law? If they have, it would seem to be clear that every consideration of public interest and of public duty would require that the facts should be made known, in order that the Senate may understandingly and promptly advise their removal, and that the most careful scrutiny should be had in respect of selecting their successors, as well as in respect of providing better means and safeguards by legislation for administering the laws of the United States.

Such information, it would seem, the Executive is determined the Senate shall not possess, for the alleged reason that it might enable the Senate to understand what circumstances connected with the faithful execution of the laws induced the President to exercise the discretion the statute confers upon him to suspend them and ask the Senate to unite with him in their removal from office. A similar result would follow in respect of the knowledge of any and every step in the transactions of the Government; for instance, the President, as Commander-in-Chief of the Army, has as large discretion as he has in the suspension of civil officers, but on the theory suggested by the Attorney-General both the President and the Secretary of War would be justified in refusing to either House of Congress copies of papers and documents relating to the administration of the Department of War and the disposition of the troops, etc., for the reason that, the facts being disclosed, the two Houses of Congress might be enabled to comprehend the reasons and motives actuating the Executive in his conduct as Commander-in-Chief.

Reduced to its simplest form the proposition would be that neither the President nor the head of a department is bound to communicate any official papers to either House of Congress which might draw into question in the minds of its members or of the people the wisdom or fairness of his acts. But the committee is of the opinion that in matters of this nature the Senate has little concern with the reasons or motives either of the heads of departments or of the Executive, but it has large concern that its own reasons and grounds of action should rest upon and be drawn from the solid truth. The Senate, if it does its duty and preserves the independence that belongs to it, must act upon its own reasons and judgment and not upon those of the President, however valuable they may be. If the truth regarding the conduct of these officials and designated persons were known, the question for the Senate would be not what were the reasons or motives of the Executive, but whether the facts themselves, as they took place, would furnish it with sufficient reason for giving or withholding its advice and consent to the proposed changes.

The report then quoted at length the passage in the President's message in regard to civil-service reform, and said that the declarations made therein give special importance to the facts relating to suspensions from office:

This highly important and valuable official communication in the presence of six hundred and forty-three suspensions from office would seem to lead to the conclusion that this number of the civil officers of the United States selected to be suspended and removed had been so derelict in the performance of their functions or guilty of such personal misconduct as to put them in the category of unfaithful public servants deserving dismissal by the President and the Senate and the condemnation of their countrymen. In such a state of things we think that the common sense of justice and fair play that is so much prized, as we believe, by the people of the United

States would require that in some way this large body of men should have an opportunity to know the substance of their alleged misdoings in order that they may either admit their guilt, or, denying it, explain their conduct, or show that the accusations against them were selfish and wicked pretexts, and set up for the mere purpose of obtaining their suspension and ultimate dismissal from office in order that others less capable and worthy might at once receive the honors and emoluments of their places. It is known to every Senator that, so far as the Senate has had to do both with removals and appointments, it has for a great number of years been its practice, when any officer or person was before it for removal or appointment, against whom any serious accusation has been made which would, if true, influence the action of the Senate in the case, to cause the person concerned to be informed of the substance of the complaint against him, and give him an opportunity to defend himself; and it is also known that at this very session a very considerable number of instances of that kind have occurred and are daily occurring. If the Senate is proceeding upon a false principle in such instances, it is high time that its course in these respects should be reversed, and that hereafter it should act upon such accusations without any knowledge other than that derived from the accusers, and leave the victims of such injustice to console themselves with the reflection that all parties are now engaged in an effort to reform the Government.

Why should the facts, as they may appear from the papers on file, be suppressed? Is it because that, being brought to light, it would appear that malice and misrepresentation and perjury are somewhat abundant, or merely that faithful and competent and honorable officers have been suspended and are proposed to be removed, under the advice and consent of the Senate, in order that places may be found for party men because they are party men or are the special objects of party favor?

How does it happen in this time of suggested reform and purer methods in government that for the first time it is thought important that the historic and administrative facts relating to the official and personal conduct of officers of the United States should be withheld, and that the administration of the Government should proceed with a secrecy and mystery as great as in the days of the Star Chamber?

The high respect and consideration that the Senate must always have for the executive office would make it reluctant to adopt either theory. But at present the impenetrable veil remains, and as the committee is unable to suggest any other solution of the riddle, it must leave it until this veil is lifted and the operations of the Government shall again be known.

The report closed with the submission of the following resolutions:

Resolved, That the foregoing report of the Committee on the Judiciary be agreed to and adopted.

Resolved, That the Senate hereby expresses its condemnation of the refusal of the Attorney-General, under whatever influence, to send to the Senate copies of papers called for by its resolution of the 25th of January and set forth in the report of the Committee on the Judiciary as in violation of his official duty and subversive of the fundamental principles of the Government and of a good administration thereof.

Resolved, That it is, under these circumstances, the duty of the Senate to refuse its advice and consent to proposed removals of officers, the documents and papers in reference to the supposed official or personal misconduct of whom are withheld by the Executive or any head of a department when deemed necessary by the Senate and called for in considering the matter.

Resolved, That the provision of section 1754 of the Revised Statutes declaring that persons honorably discharged from the military or naval service by reason of disability resulting from wounds or sickness incurred in the line of duty shall be preferred for

appointments to civil offices, provided they are found to possess the business capacity necessary for the proper discharge of the duties of such office, ought to be faithfully and fully put in execution, and that to remove, or to propose to remove, any such soldier whose faithfulness, competency, and character are above reproach and to give place to another who has not rendered such service, is a violation of the spirit of the law and of the practical gratitude the people and Government of the United States owe to the defenders of constitutional liberty and the integrity of the Government.

Feb. 23, Mr. Morgan, of Alabama, submitted the following resolutions touching the report of the Committee on the Judiciary:

Whereas, A majority of the Committee on the Judiciary have originated and reported to the Senate and recommend the adoption of the following resolution:

"Resolved, That the Senate hereby expresses its condemnation of the refusal of the Attorney-General, under whatever influence, to send to the Senate copies of papers called for by its resolution of the 25th of January and set forth in the report of the Committee on the Judiciary as in violation of his official duty and subversive of the fundamental principles of the Government and of a good administration thereof"; and

Whereas, The Senate, if said resolution is adopted as being true upon the facts and as matter of law, will thereby announce the prejudgment of a majority of this body, without any trial according to law, that the Attorney-General of the United States is guilty of and condemned for having willfully committed an offense in the conduct of his office which is in violation of his official duty and is subversive of the fundamental principles of the Government of the United States; and

Whereas, The Attorney-General, if he has in fact willfully committed any offense that is in violation of his official duty and is subversive of the fundamental principles of the Government of the United States, is only amenable to the condemnation of the Senate when the Senate is sitting, with the Chief Justice of the United States, as a court of impeachment to hear and decide upon articles of impeachment presented by the House of Representatives; and

Whereas, It is alleged that the Senate has no rightful authority to cause the Attorney-General of the United States to be arrested, tried, and punished for a contempt of its authority and dignity, if the Senate shall declare that such contempt has been committed by him upon the facts stated and the averments made in said resolution and in the report which accompanies the same; and

Whereas, The Senate would be exposed to just censure if they, in the manner recommended by the Committee on the Judiciary, proceed to announce their judgment of condemnation against the Attorney-General of the United States upon an accusation that includes an offense which is punishable by impeachment; and

Whereas, The Senate would also be exposed to just censure if it should attempt to declare the Attorney-General to be in contempt of its authority, and to pass judgment of condemnation against him for such contempt without having him notified of the charge and arraigned to answer the same at the bar of the Senate;

Resolved, That the Committee on Privileges and Elections be instructed to inquire into and report upon the question whether the offense alleged against the Attorney-General of the United States in said resolution is of the class of offenses for which the head of a department may be impeached and removed from office, and whether the Senate can take jurisdiction of said alleged offense in the manner provided for in said resolution, and can proceed to convict and condemn the Attorney-General in advance

of a trial for said alleged offense by a resolution or the Senate, there being no impeachment of said officer in the mode required by the Constitution.

2. That said committee be instructed to further inquire and report whether the Senate has the power under the law and the rules adopted for its government to arrest, try, convict, and punish the Attorney-General of the United States for a contempt of its rightful authority.

3. That said committee be further instructed to inquire and report whether the matters stated and referred to in the manner set forth in the resolution reported from the Committee on the Judiciary above copied constitute any crime or any misdemeanor in office under any law of the United States; and, if so, what penalty is annexed to said crime or misdemeanor, and what tribunal has the rightful jurisdiction to try and, on conviction, to condemn the Attorney-General of the United States to punishment for the same.

4. That said committee be further instructed to consider, ascertain, and report whether in the conduct of the Attorney-General, as stated in the resolution reported from the Committee on the Judiciary and in the accompanying report, he violated any and what law of the United States, and in what respect he has violated said law; and whether he has done any and what act, in his conduct of the business of his office to which said resolution relates, that he might not have done in the exercise of his lawful discretion.

5. That said committee be further instructed to inquire and report whether the Senate has any constitutional right or power to give its advice and consent to removals from office by the President, and whether, by withholding such advice and consent, the Senate can prevent the removal of any person from office by the President.

6. That said committee inquire and report whether the Senate, if a majority shall agree to the resolution above recited (which was reported from the Committee on the Judiciary), has the right, under the Constitution, to withhold its consent to the removal of persons by the President who are unfit for office, under the circumstances mentioned in said report of the Committee on the Judiciary and in the resolutions reported by said committee; and whether the Senate can bind its members by any declaration of the duty of the Senate, or by any rule, as a duty to the Senate, as the same is declared in the following resolution touching the powers and proper conduct of the Senate, which was also reported by the Committee on the Judiciary, namely:

"Resolved, That it is, under these circumstances, the duty of the Senate to refuse its advice and consent to proposed removals of officers the documents and papers in reference to the supposed official or personal misconduct of whom are withheld by the Executive or any head of a department when deemed necessary by the Senate and called for in considering the matter."

March 1, the President sent to the Senate the following message on the relations of that body to the executive departments:

To the Senate of the United States:

Ever since the beginning of the present session of the Senate the different heads of the departments attached to the executive branch of the Government have been plied with various requests and demands from committees of the Senate, from members of such committees, and at last from the Senate itself, requiring the transmission of reasons for the suspension of certain officials during the recess of that body, or for the papers touching the conduct of such officials, or for all papers and documents relating to such suspensions, or for all documents and papers filed in such departments in relation to the management and conduct of the offices held by such suspended officials.

The different terms from time to time adopted in

making these requests and demands, the order in which they succeeded each other, and the fact that when made by the Senate the resolution for that purpose was passed in executive session, have led to a presumption, the correctness of which will, I suppose, be candidly admitted, that from first to last the information thus sought and the papers thus demanded were desired for use by the Senate and its committees in considering the propriety of the suspensions referred to.

Though these suspensions are my executive acts, based upon considerations addressed to me alone, and for which I am wholly responsible, I have had no invitation from the Senate to state the position which I have felt constrained to assume in relation to the same, or to interpret for myself my acts and motives in the premises.

In this condition of affairs I have forbore addressing the Senate upon the subject, lest I might be accused of thrusting myself unbidden upon the attention of that body.

But the report of the Committee on the Judiciary of the Senate, lately presented and published, which censures the Attorney-General of the United States for his refusal to transmit certain papers relating to a suspension from office, and which also, if I correctly interpret it, evinces a misapprehension of the position of the Executive upon the question of such suspensions, will, I hope, justify this communication.

This report is predicated upon a resolution of the Senate directed to the Attorney-General and his reply to the same. This resolution was adopted in executive session, devoted entirely to business connected with the consideration of nominations for office. It required the Attorney-General "to transmit to the Senate copies of all documents and papers that have been filed in the Department of Justice since the 1st day of January, 1855, in relation to the management and conduct of the office of District Attorney of the United States of the Southern District of Alabama."

The incumbent of this office on the 1st day of January, 1855, and until the 17th day of July ensuing, was George M. Duskin, who, on the day last mentioned, was suspended by an executive order, and John D. Burnett designated to perform the duties of said office. At the time of the passage of the resolution above referred to, the nomination of Burnett for said office was pending before the Senate, and all the papers relating to said nomination were before that body for its inspection and information.

In reply to this resolution the Attorney-General, after referring to the fact that the papers relating to the nomination of Burnett had already been sent to the Senate, stated that he was directed by the President to say that "the papers and documents which are mentioned in said resolution and still remaining in the custody of this department, having exclusive reference to the suspension by the President of George M. Duskin, the late incumbent of the office of District Attorney for the Southern District of Alabama, it is not considered that the public interests will be promoted by a compliance with said resolution and the transmission of the papers and documents therein mentioned to the Senate in executive session."

Upon this resolution and the answer thereto the issue is thus stated by the Committee on the Judiciary at the outset of the report:

"The important question, then, is whether it is within the constitutional competence of either House of Congress to have access to the official papers and documents in the various public offices of the United States created by laws enacted by themselves."

I do not suppose that "the public offices of the United States" are regulated or controlled in their relations to either House of Congress by the fact that they were "created by laws enacted by themselves." It must be that these instrumentalities were created for the benefit of the people and to answer the general purposes of government under the Constitution and the laws, and that they are unencumbered by any lien

in favor of either branch of Congress growing out of their construction, and unembarrassed by any obligation to the Senate as the price of their creation.

The complaint of the committee, that access to official papers in the public offices is denied the Senate, is met by the statement that at no time has it been the disposition or the intention of the President or any department of the executive branch of the Government to withhold from the Senate official documents or papers filed in any of the public offices. While it is by no means conceded that the Senate has the right in any case to review the act of the Executive in removing or suspending a public officer upon official documents or otherwise, it is considered that documents and papers of that nature should, because they are official, be freely transmitted to the Senate upon its demand, trusting the use of the same for proper and legitimate purposes to the good faith of that body. And though no such paper or document has been specifically demanded in any of the numerous requests and demands made upon the departments, yet as often as they were found in the public offices they have been furnished in answer to such applications.

The letter of the Attorney-General in response to the resolution of the Senate in the particular case mentioned in the committee's report was written at my suggestion and by my direction. There had been no official papers or documents filed in his department relating to the case within the period specified in the resolution. The letter was intended, by its description of the papers and documents remaining in the custody of the department, to convey the idea that they were not official; and it was assumed that the resolution called for information, papers, and documents of the same character as were required by the requests and demands which preceded it.

Everything that had been written or done on behalf of the Senate from the beginning pointed to all letters and papers of a private and unofficial nature as the objects of search, if they were to be found in the departments, and provided they had been presented to the Executive with a view to their consideration upon the question of suspension from office.

Against the transmission of such papers and documents I have interposed my advice and direction. This has not been done, as is suggested in the committee's report, upon the assumption on my part that the Attorney-General or any other head of a department "is the servant of the President, and is to give or withhold copies of documents in his office according to the will of the Executive and not otherwise," but because I regard the papers and documents withheld and addressed to me, or intended for my use and action, purely unofficial and private, not infrequently confidential, and having reference to the performance of a duty exclusively mine. I consider them in no proper sense as upon the files of the department, but as deposited there for my convenience, remaining still completely under my control. I suppose if I desired to take them into my custody I might do so with entire propriety, and if I saw fit to destroy them no one could complain.

Even the committee in its report appears to concede that there may be with the President, or in the departments, papers and documents which, on account of their unofficial character, are not subject to the inspection of the Congress. A reference in the report to instances where the House of Representatives ought not to succeed in a call for the production of papers is immediately followed by this statement:

"The committee feels authorized to state, after a somewhat careful research, that within the foregoing limits there is scarcely in the history of this Government, until now, any instance of a refusal by a head of a department, or even of the President himself, to communicate official facts and information as distinguished from private and unofficial papers, motions, views, reasons, and opinions to either House of Congress when unconditionally demanded."

To which of the classes thus recognized do the papers and documents belong that are now the objects of the Senate's quest?

They consist of letters and representations addressed to the Executive or intended for his inspection; they are voluntarily written and presented by private citizens who are not in the least instigated thereto by any official invitation or at all subject to official control. While some of them are entitled to executive consideration, many of them are so irrelevant, or, in the light of other facts, so worthless, that they have not been given the least weight in determining the question to which they are supposed to relate.

Are all these, simply because they are preserved, to be considered official documents and subject to the inspection of the Senate? If not, who is to determine which belong to this class? Are the motives and purposes of the Senate, as they are day by day developed, such as would be satisfied with my selection? Am I to submit to theirs at the risk of being charged with making a suspension from office upon evidence which was not even considered?

Are these papers to be regarded official because they have not only been presented but preserved in the public offices?

Their nature and character remain the same whether they are kept in the Executive Mansion or deposited in the departments. There is no mysterious power of transmutation in departmental custody, nor is there magic in the undefined and sacred solemnity of department files. If the presence of these papers in the public offices is a stumbling-block in the way of the performance of senatorial duty, it can be easily removed.

The papers and documents which have been described derive no official character from any constitutional, statutory, or other requirement making them necessary to the performance of the official duty of the Executive.

It will not be denied, I suppose, that the President may suspend a public officer in the entire absence of any papers or documents to aid his official judgment and discretion. And I am quite prepared to avow that the cases are not few in which suspensions from office have depended more upon oral representations made to me by citizens of known good repute, and by members of the House of Representatives and Senators of the United States, than upon any letters and documents presented for my examination. I have not felt justified in suspecting the veracity, integrity, and patriotism of Senators, or ignoring their representations, because they were not in party affiliation with the majority of their associates; and I recall a few suspensions which bear the approval of individual members identified politically with the majority in the Senate.

While, therefore, I am constrained to deny the right of the Senate to the papers and documents described, so far as the right to the same is based upon the claim that they are in any view of the subject official, I am also led unequivocally to dispute the right of the Senate, by the aid of any documents whatever, or in any way save through the judicial process of trial on impeachment to review or reverse the acts of the Executive in the suspension, during the recess of the Senate, of Federal officials.

I believe the power to remove or suspend such officials is vested in the President alone by the Constitution, which in express terms provides that "the executive power shall be vested in a President of the United States of America," and that "he shall take care that the laws be faithfully executed."

The Senate belongs to the legislative branch of the Government. When the Constitution by express provision superadded to its legislative duties the right to advise and consent to appointments to office and to sit as a court of impeachment, it conferred upon that body all the control and regulation of executive action supposed to be necessary for the safety of the

people; and this express and special grant of such extraordinary powers, not in any way related to or growing out of general senatorial duty, and in itself a departure from the general plan of our Government, should be held, under a familiar maxim of construction, to exclude every other right of interference with executive functions.

In the first Congress which assembled after the adoption of the Constitution, comprising many who aided in its preparation, a legislative construction was given to that instrument in which the independence of the Executive in the matter of removals from office was fully sustained.

I think it will be found that in the subsequent discussions of this question there was generally, if not at all times, a proposition pending to in some way curtail this power of the President by legislation, which furnishes evidence that to limit such power it was supposed to be necessary to supplement the Constitution by such legislation.

The first enactment of this description was passed under a stress of partisanship and political bitterness which culminated in the President's impeachment.

This law provided that the Federal officers to which it applied could only be suspended during the recess of the Senate when shown by evidence satisfactory to the President to be guilty of misconduct in office, or crime, or when incapable or disqualified to perform their duties, and that within twenty days after the next meeting of the Senate it should be the duty of the President "to report to the Senate such suspension, with the evidence and reasons for his action in the case."

This statute passed in 1867 when Congress was overwhelmingly and bitterly opposed politically to the President, may be regarded as an indication that even then it was thought necessary by a Congress determined upon the subjugation of the Executive to legislative will to furnish itself a law for that purpose, instead of attempting to reach the object intended by an invocation of any pretended constitutional right.

The law which thus found its way to our statute-book was plain in its terms, and its intent needed no avowal. If valid and now in operation it would justify the present course of the Senate and command the obedience of the Executive to its demands. It may, however, be remarked in passing that, under this law the President had the privilege of presenting to the body which assumed to review his executive acts his reasons therefor, instead of being excluded from explanation or judged by papers found in the departments.

Two years after the law of 1867 was passed, and within less than five weeks after the inauguration of a President in political accord with both branches of Congress, the sections of the act regulating suspensions from office during the recess of the Senate were entirely repealed, and in their place were substituted provisions which, instead of limiting the causes of suspension to misconduct, crime, disability, or disqualification, expressly permitted such suspension by the President "in his discretion," and completely abandoned the requirement obliging him to report to the Senate "the evidence and reasons" for his action.

With these modifications and with all branches of the Government in political harmony, and in the absence of partisan incentive to captious obstruction, the law as it was left by the amendment of 1869 was much less destructive of executive discretion. And yet the great general and patriotic citizen who on the 4th day of March, 1869, assumed the duties of Chief Executive, and for whose freer administration of his high office the most hateful restraints of the law of 1867 were on the 5th day of April, 1869, removed, mindful of his obligation to defend and protect every prerogative of his great trust, and apprehensive of the injury threatened the public service in the continued operation of these statutes even in their modified form, in his first message to Congress advised their repeal, and

set forth their unconstitutional character and hurtful tendency in the following language:

"It may be well to mention here the embarrassment possible to arise from leaving on the statute-books the so-called 'tenure-of-office acts' and to earnestly recommend their total repeal. It could not have been the intention of the framers of the Constitution, when providing that appointments made by the President should receive the consent of the Senate, that the latter should have the power to retain in office persons placed there by Federal appointment against the will of the President. The law is inconsistent with a faithful and efficient administration of the Government. What faith can an Executive put in officials forced upon him, and those, too, whom he has suspended for reason? How will such officials be likely to serve an Administration which they know do not trust them?"

I am unable to state whether or not this recommendation for a repeal of these laws has been since repeated. If it has not, the reason can probably be found in the experience which demonstrated the fact that the necessities of the political situation but rarely developed their vicious character.

And so it happens that after an existence of nearly twenty years of almost innocuous desuetude these laws are brought forth—apparently the repealed as well as the unrepealed—and put in the way of an Executive who is willing, if permitted, to attempt an improvement in the methods of administration.

The constitutionality of these laws is by no means admitted. But why should the provisions of the repealed law, which required specific cause for suspension and a report to the Senate of "evidence and reasons," be now, in effect, applied to the present Executive, instead of the law, afterward passed and unrepealed, which distinctly permits suspensions by the President "in his discretion," and carefully omits the requirement that "evidence and reasons for his action in the case" shall be reported to the Senate.

The requests and demands which by the score have for nearly three months been presented to the different departments of the Government whatever may be their form, have but one complexion. They assume the right of the Senate to sit in judgment upon the exercise of my exclusive discretion and executive function, for which I am solely responsible to the people from whom I have so lately received the sacred trust of office. My oath to support and defend the Constitution, my duty to the people who have chosen me to execute the powers of their great office and not to relinquish them, and my duty to the chief magistracy, which I must preserve unimpaired in all its dignity and vigor, compel me to refuse compliance with these demands.

To the end that the service may be improved, the Senate is invited to the fullest scrutiny of the persons submitted to them for public office, in recognition of the constitutional power of that body to advise and consent to their appointment. I shall continue, as I have thus far done, to furnish, at the request of the confirming body, all the information I possess touching the fitness of the nominees placed before them for their action, both when they are proposed to fill vacancies and to take the place of suspended officials. Upon a refusal to confirm I shall not assume the right to ask the reasons for the action of the Senate nor question its determination. I can not think that anything more is required to secure worthy incumbents in public office than a careful and independent discharge of our respective duties within their well-defined limits.

Though the propriety of suspensions might be better assured if the action of the President was subject to review by the Senate, yet if the Constitution and the laws have placed this responsibility upon the executive branch of the Government, it should not be divided nor the discretion which it involves relinquished.

It has been claimed that the present Executive, hav-

ing pledged himself not to remove officials except for cause, the fact of their suspension implies such misconduct on the part of a suspended official as injures his character and reputation, and therefore the Senate should review the case for his vindication.

I have said that certain officials should not, in my opinion, be removed during the continuance of the term for which they were appointed solely for the purpose of putting in their place those in political affiliation with the appointing power, and this declaration was immediately followed by a description of official partisanship which ought not to entitle those in whom it was exhibited to consideration. It is not apparent how an adherence to the course thus announced carries with it the consequences described. If in any degree the suggestion is worthy of consideration, it is to be hoped that there may be a defense against unjust suspension in the justice of the Executive.

Every pledge which I have made by which I have placed a limitation upon my exercise of executive power has been faithfully redeemed. Of course the pretense is not put forth that no mistakes have been committed; but not a suspension has been made except it appeared to my satisfaction that the public welfare would be improved thereby. Many applications for suspension have been denied, and the adherence to the rule laid down to govern my actions as to such suspensions has caused much irritation and impatience on the part of those who have insisted upon more changes in the offices.

The pledges I have made were made to the people, and to them I am responsible for the manner in which they have been redeemed. I am not responsible to the Senate, and I am unwilling to submit my actions and official conduct to them for judgment.

There are no grounds for an allegation that the fear of being found false to my professions influences me in declining to submit to the demands of the Senate. I have not constantly refused to suspend officials, and thus incurred the displeasure of political friends, and yet willfully broken faith with the people for the sake of being false to them.

Neither the discontent of party friends nor the allurements constantly offered of confirmations of appointees conditioned upon the avowal that suspensions have been made on party grounds alone, nor the threat proposed in the resolutions now before the Senate that no confirmations will be made unless the demands of that body be complied with, are sufficient to discourage or deter me from following in the way which I am convinced leads to better government for the people.

GROVER CLEVELAND.

EXECUTIVE MANSION,

WASHINGTON, D. C., March 1, 1886.

March 1, the minority of the Committee on the Judiciary, through Mr. Pugh, of Alabama, presented a report, in the course of which it is said :

The right of the Senate or House to papers and documents in the keeping of the President or the heads of departments must be decided by their contents and character and the use that can be made of them in the exercise of any power or jurisdiction intrusted to either house by the Constitution in executive or legislative session. If the papers and documents can instruct or aid either house in the exercise of legislative or executive powers or privileges intrusted to them by the Constitution, the right of either house to the possession of such papers or documents or their contents has never been questioned. It is impossible, in the judgment of the minority, for the majority or for the Senate to find the slightest support, excuse, or justification for their claim to the papers and documents relating exclusively to suspensions by the President, except on the ground that the Senate has the same power under the Constitution of advising and consenting to suspensions by the President that they have to advise and consent to his appointments.

There is no ingenuity sufficiently skilled in special pleading to separate the two powers of suspension and appointment, and make each absolute and independent of the other, and at the same time claim that the custodian of one power is entitled to all the papers and documents in the sole keeping of the custodian of the other power and relating exclusively to matters within his jurisdiction.

But it is insisted that the President has no right to know or to inquire what use the Senate intends making of the papers and documents. Can it be seriously urged that if the papers and documents called for are not public but private, and relate exclusively to the official acts of the President, for which he is under no responsibility to the Senate, that the Senate has any right to their possession? Who is to judge whether the papers and documents are public or private—the President, who knows their contents and to what they relate, or the Senate, which has no such information? How is the Senate to pass on the character and contents of the papers and documents before seeing them, and how will it be if after inspection of the papers and documents the Senate decides it has no right to their possession? How can the President possibly avoid knowing what use the Senate intends making of the papers when they show on their face that they can not be made to relate to anything but suspension? And if it were possible for the President to close his eyes to the contents of the papers and documents and the use that is to be made of them by the Senate, can the right be denied to those Senators who resist the claim of the Senate to have inspection of papers and documents relating exclusively to suspensions by the President to know what use is intended to be made of the papers and documents by the Senate?

The minority claim to know what use is intended to be made by the majority of your committee of the papers and documents called for and relating exclusively to suspensions, and with that knowledge the minority are satisfied that their possession and use by the Senate is unconstitutional and supported by no law, usage, or public policy, and that their transmission to the Senate was rightfully refused by the Attorney-General on the order of the President.

The debate on the subject was long and earnest. Mr. Edmunds, of Vermont, said : "The suspension of an officer is said by the minority of the committee to be an act solely within the exclusive discretion of the President of the United States. So say the majority of the committee. But is not the suspension of a public officer an official act? The statute says it is; the President says it is. When under his seal and signature and the certificate of the Secretary of State, the attesting witness of the authenticity of the document, he suspends an officer, he does it officially. Of course he has no right to do it privately. It is the President, and not the man, that suspends the officer, and it is therefore an official act. Therefore, every paper which is addressed to the officer exercising that function, in his character as the officer exercising that function and upon that topic, must be an official paper. No matter how vile it may be, no matter how false it may be, no matter how little influence it may produce upon the mind of the officer who has to act upon it, it is not the less an official paper. It does not belong to the man, be he President, or Secretary, or Attorney-General, but it belongs to the officer in his character as an officer. I take it there can be no question of that.

"The Attorney-General, it may be added—

for, as I say, these remarks that I am now making are quite aside from any questions we have at present before us—the Attorney-General of the United States, in his response to this resolution of the Senate, makes no hint that any part of the papers there, whether called for or not called for, were private and unofficial and personal or even confidential. Public papers, official papers, were called for. Public papers, official papers, are spoken of and only spoken of in his response. He says that these papers called for by the Senate relate exclusively to the suspension of Duskin. How relate? Do they relate to the motives of the President of the United States in suspending Duskin, do you suppose? Do you suppose the President or any of his friends had filed in the Department of Justice a statement of his motives in proceeding in the case of Duskin to perform a high, official, and important act? By no means. That would be absurd and ridiculous.

"These papers, therefore, on the statement of the Attorney-General, that relate exclusively to the suspension of Duskin, must state facts, or what are alleged to be facts, regarding the conduct of that officer either in his career in doing the business that the laws of the United States impute to him, or in his career as a citizen and man, rendering him fit to be continued in his place or rendering him deserving of being put under civil arrest until his case can be considered in the way that the law has provided. That is what they must be, as we all know. Now, then, if the Senate is called upon, as it is, to assist in displacing this man permanently from his office, the very papers that exist there on the admission of the Attorney-General are papers which relate to the conduct and management of that office while he had possession of it. And yet the minority of the committee tell us that inasmuch as these papers, if they were produced, would not only give us the facts upon which we ought to act for the proposed removal of this man, but would enable us to understand the reason that the President had for exercising that high official act, therefore the Senate of the United States being called upon to pronounce judgment on the official conduct of this man, and the President of the United States having been previously called upon within his jurisdiction to pronounce a judgment upon a similar question about the same man, the Senate can not have the papers, because if they aid in the exercise of their jurisdiction it would disclose the ground upon which the President acted in the exercise of his! If that is not a proposition which would stagger the credulity and amaze the understanding of any intelligent man in a government of laws or in a government of reason, I am quite unable to comprehend what would be."

Mr. Pugh, of Alabama, argued that the demand for papers made upon the Attorney-General

was a demand for private papers. He said: "Are the papers called for from the Attorney-General such as the Senate has the right to have in the discharge of any of its duties? The President states that the papers are private, unofficial, and relate to nothing over which the Senate has jurisdiction. The majority of the Judiciary Committee and its distinguished chairman the Senator from Vermont say that this information, although unofficial and private, does enable the Senate to discharge a duty that it has, a power that it claims, of revising the official act of the President in suspending George M. Duskin as district attorney.

"That is the undisputed basis of the claim to these private unofficial papers and documents. It is a claim of the power of the Senate to exercise the same control and revision over the act of suspension or removal which is claimed and exercised and given to the Senate expressly by the Constitution of advising and consenting to appointments. There is no mistake about that being the claim asserted by the majority of the Judiciary Committee, and there is no mistake that the resolution reported condemns the official act of the Attorney-General for the reason that he has withheld, on the order of the President, information that he states was composed of private documents and papers that he said were unofficial and private, and withheld from the Senate on the President's positive order because they are private, because they are unofficial, and relate to no duty that the Constitution or law imposes upon the Senate to discharge.

"Is there anything in the history of the Government to support this claim? The distinguished Senator from Vermont has presented a large array of what he calls precedents. I undertake to say, and I challenge denial upon the fullest test, that there is no case in the history of the Government for eighty years where any such documents as those called for in the resolution were ever transmitted to the Senate in executive or public session on the order of the Senate upon an Attorney-General or President."

Mr. Morgan, of Alabama, said: "Let us give to the Senate and the President the sort of safeguard and restraint also that the courts employ in the protection of grand juries and traverse juries; and let us protect the President, his advisers and informants, against the forced revelation of the facts upon which he removes a man from office, as we protect witnesses and grand jurors from the dangers to them and to the public welfare which would arise from the disclosure of their votes in charging powerful men or powerful bands of conspirators with great crimes. The wise decree of public policy is that no man has the right to require of a public officer information of a fact the publication of which will injure the State, unless the fact is essential to the performance of some duty to the

State which he is bound to render in obedience to the Constitution or the law.

"The motives of the President in the suspension of Duskin was the actual subject of the inquiry, however ingeniously the purpose is masked by special pleading. The Committee on the Judiciary based its right to make the inquiry, not upon the right of the Senate to legislate for the benefit of the country or to gather evidence on which Duskin could be impeached or censured, but upon the ground that the Senate is empowered by the Constitution and the law to prohibit the President from removing certain classes of officers, and that therefore they have the right to be informed of every fact that operated on the mind of the President in suspending Duskin from office.

"If the Senate has no such power, their interference in this matter can not be justified, unless they are seeking to show that the President is guilty of some misdemeanor in office in the removal of Duskin for which he ought to be impeached. If that is the purpose, and if the Senate believes, as the committee believe—if they believe anything—and have declared in these resolutions, let the Senate order an investigation upon charges preferred by them against the Attorney-General or against the President, accusing them of a high crime or misdemeanor in office. Let them direct the committee to send for persons and papers and ascertain the facts which will show the guilt of these high officers, or else will show the grave wrong, which I hope is a mistake, of those who bring an unjust accusation in regard to a matter over which they have no jurisdiction and condemn a high officer as a criminal for denying to the Senate a power which they are eager to usurp. If the Senate must impeach and condemn an officer in an *ex parte* proceeding, let it at least have the courage to say that the offense is or is not impeachable.

"When the Senate is considering a nomination to office, and, as collateral to that question, chooses to consider the reasons that induced the President to remove somebody else from the same office, will it deny to the act of the President full faith and credit, and assume to itself the power to assail his act by a direct proceeding and to set it aside and annul it? It must do this if it would open to examination the question whether he acted honestly in making the removal.

"The Senate has the power to consider a nomination sent to it by the President. In doing this it acts directly and conclusively on the subject. It settles the question, and sends the result to the President as being conclusive on him. He is bound to give it full faith and credit, without any inquiry as to whether the Senate had good motives or sufficient evidence to warrant its action. The Senate has no power to consider a removal from office made by the President, except in a collateral and inconclusive way; and it rests with him to say whether he will or will not inform the Senate of the

reasons for his action, or as to the facts upon which he based his action. To my judgment it is a clear proposition that the President has a definite grant of power in the Constitution to remove persons from office; while the Senate has no more authority over participating in that act or to reverse it than the House of Representatives or the Supreme Court have."

Mr. Ingalls, of Kansas, who made the liveliest speech of the debate, argued that the necessity for investigation in regard to suspensions on the part of the Senate arose out of the professions of the President to the effect that he would not make removals except for cause. He said: "If when the President was inaugurated he had determined that the functions of Government should be exercised by officers selected from his own party, the nation would have been content; but he did not so determine, and herein and hereon is founded the justification that the majority of the Senate can satisfactorily use and employ in demanding that no action shall be had in connection with these suspensions from office until there has been satisfactory assurance that injustice has not been done. If it were understood that these suspensions and removals were made for political reasons, the country would be content, the Republican majority in the Senate would be content. But what is the attitude? Ever since his inauguration and for many months before, by many utterances, official and private, in repeated declarations never challenged, Mr. Cleveland announced that he would not so administer this Government. At the very outset, in his letter of acceptance, he denounced the doctrine of partisan changes in the patronage, and through all of his political manifesto down to the present time he has repeated these assurances with emphatic and unchanging monotony.

"He has declared that there shall be no changes in office, where the incumbents were competent and qualified, for political reasons, but that they should be permitted to serve their terms. Like those who were grinding at the mill, one has been taken and another has been left. Some Republicans have been suspended and others have been retained. What is the irresistible inference? What is the logic of the events, except that, in view of what the President has declared, every man who is suspended is suspended for cause, and not for political reasons? It is not possible to suspect the President of duplicity and treacherous deception."

March 26, the resolutions submitted in the majority report of the Committee on the Judiciary were adopted. The vote on the first resolution was as follows:

YEAS—Aldrich, Allison, Blair, Cameron, Chace, Conger, Cullom, Dawes, Edmunds, Evarts, Frye, Hale, Harrison, Hawley, Hoar, Logan, McMillan, Mahone, Manderson, Miller, Mitchell of Oregon, Morrill, Platt, Plumb, Sabin, Sawyer, Sherman, Spooner, Stanford, Teller, Van Wyk, Wilson of Iowa—32.

NAYS—Beck, Berry, Blackburn, Brown, Butler,

CONGRESS. (DES MOINES RIVER LANDS.)

Call, Camden, Cockrell, Coke, Eustis, George, Gibson, Gorman, Gray, Harris, Jackson, Jones of Arkansas, Kenna, Macey, Morgan, Payne, Pugh, Ransom, Vornees, Walthall, Wilson of Maryland—26.

ABSENT—Bowen, Colquitt, Dolph, Fair, Hampton, Ingalls, Jones of Florida, Jones of Nevada, McPherson, Mitchell of Pennsylvania, Palmer, Pike, Riddleberger, Saulsbury, Sewell, Vance, Vest—17.

The vote on the second resolution was the same, except that Mr. Morgan was among the absent. The vote on the third resolution was 30 yeas to 29 nays. The vote on the fourth resolution was 56 yeas to 1 nay, Mr. Morgan voting in the negative. That gentleman offered the following resolution:

Resolved, That nothing in these resolutions contained is to be construed as declaring that the conduct of the Attorney-General renders him liable to impeachment, and the Senate disclaims the right or power to punish him by imprisonment or otherwise than by impeachment for the offense charged against him in the second resolution, which the Senate has just adopted.

It was laid on the table by a vote of 33 yeas to 26 nays.

The main point in the debate, though issue was joined on a technical question as to the resolution of the Senate and the Executive, was whether removal from office under the policy proclaimed by the new Administration involved an imputation on the official removed; and the purpose of the Republican Senators was to compel an acknowledgment that officials were removed merely on political grounds. In the course of the session the Secretary of the Treasury made an arrangement by which, in the case of collectors of internal revenue, it was conceded that where charges were not preferred removal was not in any way a reflection upon the official removed.

Des Moines River Lands.—The bill to quiet the title of settlers on the Des Moines river lands in Iowa, which had been before every Congress since the Forty-third, had been favorably reported many times, had passed the House of Representatives twice, and the Senate once, again passed the Senate, Feb. 11, 1886, without a division, and Feb. 24, passed the House in the same way. The measure was as follows:

Whereas, It is alleged that all the lands along the Des Moines river above the mouth of the Raccoon Fork, in the State of Iowa, referred to in the joint resolution of March 2, 1861 (12 Statutes, page 251), as certified to said State improperly by the Department of the Interior as under the grant of August 8, 1846, and which were treated in the Harvey settlement of May 20, 1866, as having been sold or otherwise disposed of by the United States, as mentioned or provided in the act of July 12, 1852 (12 Statutes, page 543), to extend the grant of 1846, and for which lands the State, in the Harvey settlement, received and accepted by the Department of the Interior after Secretary Browning's decision of May 9, 1868, and that by such settlement Iowa, in accepting the indemnity lands as referred to, is estopped from all claim to the lands in place that were improperly certified as river-land or under the act of 1846.

Whereas there are many settlers who, believing that the said lands were public lands, entered upon the same in good faith, and with the consent of the Department of the Interior, as pre-emptions and home-

steads, and since so doing, and after receiving patents, have been held by the courts as trespassers, or that the lands were reserved from settlement: Therefore,

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

That all the lands improperly certified to Iowa by the Department of the Interior under the act of August 8, 1846, as referred to in the joint resolution of March 2, 1861, for which indemnity lands were selected and received by the State of Iowa, as provided in the act of 1862, are, and are hereby declared to be, public lands of the United States: *Provided*, That the title of all *bona-fide* settlers under color of title from the State of Iowa and its grantees, or the United States and its grantees, which do not come in conflict with pre-emption or homestead claimants, are hereby ratified and confirmed, and made valid: *Provided further*, That the claims of all persons who, with intent, in good faith, to obtain title thereto under the pre-emption or homestead laws of the United States, entered or remained upon any tract of said land prior to January, 1880, not exceeding one hundred and sixty acres, are hereby confirmed and made valid in them, their heirs, or their proper assigns, and upon due proof thereof, and payment of the usual price or fees, where the same has not been paid, shall be carried to patent: *Provided further*, That the titles of all *bona-fide* claimants, under color of title from the State of Iowa and its grantees, or the United States and its grantees, which do not come in conflict with persons who, with intent, in good faith, to obtain title thereto, under the pre-emption or homestead laws of the United States, settled upon the said lands prior to January, 1880, are confirmed and made valid.

Sec. 2. That it is hereby made the duty of the Attorney-General, within ninety days after the passage of this act, to institute, or cause to be instituted, such suit or suits, either in law or equity, or both, as may be necessary and proper to assert and protect the title of the United States to said lands and remove all clouds from its title thereto; and until such suits shall be determined, and Congress shall so provide, no part of said lands shall be open for settlement or sale except as hereinbefore provided. And in any suits so instituted, any person or persons in possession of or claiming title to any tract or tracts of land under the United States involved in such suits may, at his or their expense, unite with the United States in the prosecution of such suits.

March 11, 1886, the President sent in the following veto message:

To the Senate of the United States:

I return herewith, without approval, and with a statement of my objections thereto, Senate bill No. 150, entitled "An act to quiet title of settlers on the Des Moines river lands in the State of Iowa, and for other purposes."

This proposed legislation grows out of a grant of land made to the Territory of Iowa in the year 1846 to aid in the improvement of the navigation of the Des Moines river.

The language of this grant was such that it gave rise to conflicting decisions on the part of the Government departments as to its extent, and it was not until 1860 that this question was authoritatively and finally settled by the Supreme Court of the United States. Its decision diminished the extent of the grant to a quantity much less than had been insisted on by certain interested parties, and rendered invalid the titles of parties who held, under the Territory or State of Iowa, lands beyond the limit of the grant fixed by the decision of the court.

For the purpose of validating such titles and to settle all disputes so far as the General Government was concerned, the Congress, in the year 1861, by a joint resolution, transferred to the State of Iowa all the title then retained by the United States to the lands within the larger limits which had been claimed and then held by *bona-fide* purchasers from the State; and in

1862 an act of Congress was passed for the same general purpose.

Without detailing the exact language of this resolution and statute, it certainly seems to be such a transfer and relinquishment of all interests in the land mentioned on the part of the United States as to relieve the Government from any further concern therein.

The questions unfortunately growing out of this grant, and the legislation relating thereto have been passed upon by the United States Supreme Court in numerous cases; and as late as 1883 that court, referring to its many previous decisions, adjudged:

"That the act of 1862 (C. 161, 12 Stats., 543) transferred the title from the United States and vested it in the State of Iowa, for the use of its grantees under the river grant."

Bills similar to this have been before Congress for a number of years, and have failed of passage; and at least on one occasion the Committee on the Judiciary of the Senate reported adversely upon a measure covering the same ground.

I have carefully examined the legislation upon the subject of this grant, and studied the decisions of the court upon the numerous and complicated questions which have arisen from such legislation, and the positions of the parties claiming an interest in the land covered by said grant; and I can not but think that every possible question that can be raised, or at least that ought to be raised, in any suit relating to these lands, has been determined by the highest judicial authority in the land. And if any substantial point remains yet unsettled, I believe there is no difficulty in presenting it to the proper tribunal.

This bill declares that certain lands which nearly twenty-four years ago, the United States entirely relinquished are still public lands, and directs the Attorney-General to begin suits to assert and protect the title of the United States in such lands.

If it be true that these are public lands, the declaration that they are so by enactment is entirely unnecessary; and if they are wrongfully withheld from the Government, the duty and authority of the Attorney-General are not aided by the proposed legislation. If they are not public lands because the United States have conveyed them to others, the bill is subject to grave objections as an attempt to destroy vested rights and disturb interests which have long since become fixed.

If a law of Congress could, in the manner contemplated by the bill, change, under the Constitution, the existing rights of any of the parties claiming interests in these lands, it hardly seems that any new questions could be presented to the courts which would do more than raise false hopes and renew useless and bitter strife and litigation.

It seems to me that all controversies which can hereafter arise between those claiming these lands have been fairly remitted to the State of Iowa, and that there they can be properly and safely left; and the Government, through its Attorney-General, should not be called upon to litigate the rights of private parties.

It is not pleasant to contemplate loss threatened to any party acting in good faith, caused by uncertainty in the language of laws or their conflicting interpretation; and if there are persons occupying these lands who labor under such disabilities as prevent them from appealing to the courts for a redress of their wrongs, a plain statute, directed simply to a remedy for such disabilities, would not be objectionable.

Should there be meritorious cases of hardship and loss, caused by an invitation on the part of the Government to settle upon lands apparently public, but to which no right nor lawful possession can be secured, it would be better, rather than to attempt a disturbance of titles already settled, to ascertain such losses and do equity by compensating the proper parties through an appropriation for that purpose.

A law to accomplish this very object was passed by

Congress in the year 1873. Valuable proof is thus furnished by the only law ever passed upon the subject of the manner in which it was thought proper by the Congress at that time to meet the difficulties suggested by the bill now under consideration.

Notwithstanding the fact that there may be parties in the occupancy of these lands who suffer hardship by the application of strict legal principles to their claims, safety lies in the non-interference by Congress with matters which should be left to judicial cognizance; and I am unwilling to concur in legislation which, if not an encroachment upon judicial power, trenches so closely thereon as to be of doubtful expediency, and which at the same time increases the elements of litigation that have heretofore existed and endangers vested rights.

GROVER CLEVELAND.
EXECUTIVE MANSION, March 11, 1886.

In the debate in the Senate on the motion to pass the bill over the President's veto, Mr. Evarts, of New York, said:

"If any one will point out to me the right or the method of asserting these homestead or pre-emption claims against the title made under the State of Iowa to the Des Moines Navigation Company by the United States in their legislation I shall be happy to consider it; but I do not know that when this was challenged in the last debate in the last Congress in this body then that an attempt was made to do so.

"Of course that there should be a body of land in dispute is injurious to all concerned. It is always injurious to the neighborhood, to the development of the State. These lands, I am told, are as fortunate and fertile perhaps as any equal amount of the favored land of that great State of Iowa; and all who are involved in either the discouragement or despair of failing in lands which they thought they could gain are entitled to full and ample consideration; but the question of the method to be adopted and pursued to that end brings us now to what is a very simple and a very intelligible proposition.

"If it be true that the United States now has any title in this land, if it now constitutes a part of the public domain, the United States can assert by such methods as the law opens to the United States the maintenance of that title; and when that title has been established and by determination the land has come back into the public domain, then I suppose not a single voice would be raised against entertaining and disposing of just claims that have rested upon this dormant title that is finally established, as it would be in the case I have supposed, in the United States.

"But this bill does not proceed upon that proposition. Pending the course of legislation and pending the course of judicial determination, such as it is, for a series of years an attempt has been made to put these claimants or the United States in their behalf upon a footing which the law and the courts did not give them. Several times in past sessions the bill has passed one or the other of the bodies of Congress, but not until now has it passed both houses and been presented to the President for his sanction to its becoming a law. His ex-

amination of it has led him to think that for grave reasons, very tersely and yet very comprehensively stated in this message of the President, this disturbance of the courts and of the law and reconsideration by the United States of legislation which has been determinative of this point should not be allowed."

In the course of an argument for the bill, Mr. Wilson, of Iowa, said :

"This disputation concerning these lands has clouded the title for a quarter of a century of all the lands embraced within the alleged grant, lying in one of the most beautiful sections of Iowa. Men who have gone upon those lands as settlers in the early days when that region was the advanced frontier post of civilization, having clustering around the lands upon which they settled and the homes which they there created all of those tender sentiments that tie men to home, were not willing, even if it required personal sacrifice, to have those ties all sundered and go out in the world again in search of other homes. So they said to this company, some of them, 'In order to have peace we will buy in your title such as you have.' So contracts were made with many of them by this company through an agent it had out in the State of Iowa. Rather than resist, rather than be troubled, in order to have some ascertainment of their cases, they entered into the contracts and agreed to pay, and many of them did pay, the contract price to the agent of this company. The agent was unfaithful. He did not account to his principals for the money thus received, and they repudiated his authority to receive the money, asserted that the contract was yet subsisting, sued upon the contract, and in some cases ousted these people from their homes.

"This company come here to plead not only law but equity. Will it come here with the clean hands that must go in where equity obtains? It is not found in the record of that company in the State of Iowa, neither in the greed which it has manifested concerning the return for the comparatively small outlay that it made in connection with that improvement, nor in the manner with which it has treated with the people settled upon those lands. I have here, but I shall not take the time to read them, letters from many of these men, men who have been there, as I have said, more than a quarter of a century, who have looked forward to the time when their titles should come to them from the Government, and their homes would be assured to them. While they have waited they have gone on as industrious pioneers are wont to do, reclaiming the wilds and making them habitations for progress and civilization. They have waited. Some of them have conference yet with this company. Others now occupying the lands, but as they say, tenants by sufferance, have had hard lines dealt out to them by this innocent company.

"I have one case here where a settler entered upon an eighty-acre tract of land as a pre-emptor. In the course of time he purchased

from this company eighty acres more. He gave them his contract secured upon the one hundred and sixty acres, and what was the result? The company sued him for the balance. It was but a small amount comparatively, only \$500, but he had consumed what little savings he had in buying in the eighty acres of land and in making the balance. Judgment was rendered; execution was issued. The first eighty acres were sold. The tract did not bring enough to pay the judgment. The second eighty acres were sold, and the home of the man was gone, both that part of the land upon which he entered as a pre-emptor and that which he bought from the company. Has this company been harshly dealt with? It would have been at least humane for it to have allowed this poor man to retain one of the eighty-acre tracts, inasmuch as this preposterous claim was the occasion of the small sum realized for the sale of that land. And why? Because a disturbed title is not a marketable article at fair value and because of this disturbed title claimed by this company the man's possessions went from him, and to-day he is homeless and his family with him.

"I might go on with scores of cases like this, but I will not consume the time of the Senate. I insist that the United States shall, by the enactment of this bill, notwithstanding the President's objection thereto, make at least an honest endeavor to protect the men it invited upon these lands twenty-five years ago. I insist not only for them that this remedy shall be accorded, but for all, the company itself as well as its grantees. Therefore it is provided in the bill that in all cases where there are not conflicting claims the title shall be confirmed in the holders, whether they be the Des Moines Navigation Company, its grantees, or others, the purpose of the bill and the remedy it provides being to settle now within the reasonable time which may be necessary to devote to the proposed remedy the titles to the lands in that great section of Iowa which have been disturbed so long. This, as I said in the last Congress when discussing the question, resolves itself on that account into a public question, for the disturbance of title is a serious injury to public interests and affairs."

June 29 the Senate passed the bill over the veto by the following vote:

YEAS—Allison, Beck, Berry, Blackburn, Blair, Call, Cameron, Chace, Cockrell, Coke, Conger, Dawes, Eustis, George, Hale, Harrison, Hoar, Ingalls, Jones of Arkansas, McMillan, Mahone, Manderson, Maxey, Mitchell of Oregon, Palmer, Plumb, Riddleberger, Sawyer, Sewell, Sherman, Spooner, Teller, Waithall, Wilson of Iowa—34.

NAYS—Brown, Butler, Colquitt, Edmunds, Evarts, Gray, Hampton, Hawley, McPherson, Miller, Platt, Ransom, Vance, Vest, Whithorne—15.

ABSENT—Aldrich, Bowen, Camden, Cullom, Dolph, Fair, Frye, Gibson, Gorman, Harris, Hearst, Jones of Florida, Jones of Nevada, Kenna, Logan, Mitchell of Pennsylvania, Morgan, Morrill, Payne, Pike, Pugh, Sabin, Saulsbury, Stanford, Van Wyck, Voorhees, Wilson of Maryland—27.

July 1, the question of passing the bill over the President's veto came up in the House. In the debate on the subject Mr. Payson, of Illinois, said:

"There are three classes of persons interested in these lands amounting to some 271,000 acres, that will be affected by this bill. There are, first, the men who claim under the navigation company, who are in possession and that nobody has claimed adversely to; there is a second set of people in possession under the general land law; and, third, a set of men claiming under the State of Iowa as remote grantees from the Des Moines Navigation Company. Now, what does the bill propose? It settles the titles of the first and last named classes in possession, and provides that the title of everybody in the Des Moines Navigation Company and its grantees, not in possession, that their title shall be validated.

"It provides, secondly, that those who are in possession claiming as grantees of the Des Moines Railroad and Navigation Company or as grantees from the State of Iowa shall have their title validated. And as to the other class, those who are claiming in good faith under the general land laws of the United States, it is provided that they shall be permitted to assert their rights in court. This bill does not seek to interfere with the title of any man whatever which does not clash with that of a settler. It does not presume that the title of the railroad and navigation company is invalid. It leaves all that question for judicial determination where it interferes with a settler's title. But the officers of the Interior Department have failed hitherto, and still fail, to remove the state of reservation. An act of Congress which was passed in 1853 provides in substance that wherever an entry is made on public lands in good faith and the land is then in a state of reservation and when that state of reservation shall afterward be removed, the rights of these people shall be respected.

"It is provided that under that statute these men may be allowed and permitted to go into court and set up their homestead and pre-emption rights as against the railroad and navigation company. This is all the bill purports to do, and the only other thing that can result from the passage of this bill is the inconvenience of a lawsuit to the Des Moines Railroad and Navigation Company. In one side of the balance are the interests of twelve hundred American citizens who rely upon the promise which was made to them by those on whom they had a right to rely, the officers of the Interior Department. Relying upon that promise, they went out upon the frontier at an early day and braved the dangers and endured the hardships and privations of a frontier life. They paid their money into the treasury for the land on which they are living. That is one side of the balance. On the other side there is the inconvenience of a lawsuit to a corporation which has set up a claim to 270,000 acres of

land to which, in my judgment, it has no more right legally or equitably than I have to the desk under my hand.

"That is the case in a nutshell. Nobody pretends to gainsay it. I know what will be the argument on the other side, and the President of the United States intimates it in his message. The doors of the courts are open if these people have any legal rights, and he asks why they did not come in and assert them. In this he studiously avoids the proposition that under existing law the doors of the courts are shut to the people because of the state of reservation in which these lands have been for all these years."

The motion to override the President's veto failed by the following vote—less than two thirds voting in the affirmative:

YEAS—G. E. Adams, J. M. Allen, J. A. Anderson, Atkinson, Barker, Barksdale, Barry, Blayne, Bingham, Bland, Bound, Bouteille, Brady, T. M. Browne, C. E. Brown, Brumm, Buck, Burnes, Burrows, Butterworth, Bynum, Caldwell, J. M. Campbell, J. E. Campbell, Cannon, Carleton, Caswell, Cobb, Conger, Crain, Culverson, Cutcheon, Daniel, Davis, Dingley, Dockery, Dorsey, Dunham, Eldredge, Ely, Everhart, Farquhar, Felton, Fisher, Fleeger, Frederick, Fuller, Funston, Gallinger, Geddes, Gilfillan, Grosvenor, Grout, Guenther, Harmer, Hatch, Hayden, D. B. Henderson, T. J. Henderson, Henley, Hepburn, Hermann, Hiestand, Hires, Holman, Holmes, Hopkins, Jackson, James, J. H. Jones, Kelley, Kleiner, Laffoon, La Follette, Laird, Lanham, Lawler, Lehlbach, Libbey, Lindsley, Little, Long, Louttit, Loury, Lyman, Markham, Matson, Maybury, McComas, McKenna, McKinley, Milliken, Mills, Moffatt, Morgan, Morrill, Morrow, Murphy, Neal, Neece, Negley, Nelson, O'Donnell, O'Hara, Charles O'Neill, Owen, Payne, Payson, Perkins, Peters, Pettibone, Pirce, Price, Reagan, T. B. Reed, Rice, Rockwell, Romeis, Rowell, Ryan, Sayers, Sessions, Skinner, Spooner, Steele, Stephenson, Charles Stewart, E. F. Stone, W. J. Stone of Missouri, Strait, Struble, Swinburne, Symes, Tarsney, Talbeau, E. B. Taylor, I. H. Taylor, J. M. Taylor, Zachary Taylor, O. B. Thomas, Tillman, Townshend, Van Eaton, Van Schaick, Wade, Wadsworth, Wait Wakefield, A. J. Warner, William Warner, J. B. Weaver, Weber, Wellborn, West, A. C. White, Milo White, Wilkins, Wiggins, Wise, Wolford, Woodburn, Worthington—162.

NAYS—J. J. Adams, C. M. Anderson, Barnes, Beach, Belmont, Bennett, Blanchard, Blount, Boyle, Bragg, C. R. Breckinridge, W. C. P. Breckinridge, Cabell, Candler, Cowles Cox, Crisp, Curtin, Dargan, Davenport, A. C. Davidson, R. H. M. Davidson, Dibble, Dougherty, Dowdney, Dunn, Ermentrout, Findlay, Ford, Forney, C. H. Gibson, Hale, Halsell, Hammond, J. S. Henderson, Herbert, Hewitt, Hill, Howard, Hudd, Hutton, Irion, F. A. Johnson, T. D. Johnston, Ketcham, Lore, Martin, McAdoo, McCready, McMillin, McRae, Merriman, Millard, Miller, Mitchell, Morrison, Muller, Norwood, Oates, O'Ferrall, Outhwaite, Peel, Perry, Pidcock, Pindar, Randall, Ranney, J. W. Reid, Richardson, Robertson, Rogers, Sadler, Sawyer, Seney, Seymour, Singleton, Snyder, Sowden, Spriggs, Springer, Stahlnecker, St. Martin, W. J. Stone of Kentucky, Storm, Throckmorton, Trigg, Turner, Viele, Wallace, T. B. Ward, Wheeler, Willis, Wilson.—93.

NOT VOTING—Aiken, C. H. Allen, Arnot, Ballentine, Barbour, Bliss, W. W. Brown, Buchanan, Bunnell, Burleigh, Felix Campbell, T. J. Campbell, Catchings, Clardy, Clements, Cole, Collins, Compton, Comstock, Cooper, Croxton, Dawson, Eden, Ellsberry, Evans, Foran, Gay, Eustace Gibson, Glass, Glover, Goff, R. S. Green, W. J. Green, Hall, Hanback, Harris, Haynes, Heard, Hemphill, Hiscock, Hitt, Houk,

J. T. Johnston, J. T. Jones, King, Landes, Le Fevre, Lovering, Mahoney, J. J. O'Neill, Osborne, Parker, Phelps, Plumb, Reese, Riggs, Scott, Scranton, Shaw, Smalls, J. W. Stewart, Swope, J. R. Thomas, Thompson, Tucker, J. H. Ward, A. J. Weaver, Whiting—68.

Tariff Revision.—Nothing was done for the revision of the tariff, though various acts modifying the whole system of import duties or changing the rates on special articles were introduced. April 14, Mr. Morrison, of Illinois, from the Committee on Ways and Means, reported a measure “to reduce the tariff and to modify the laws in relation to the collection of the revenue”; and June 17 he moved that the House resolve itself into the Committee of the Whole House on the State of the Union to consider this bill. The motion was defeated by the following vote:

YEAS—J. J. Adams, J. M. Allen, C. M. Anderson, Ballentine, Barbour, Barksdale, Barnes, Barry, Beach, Belmont, Bennett, Blanchard, Bland, Blount, C. R. Breckinridge, W. C. P. Breckinridge, Burnes, Bynum, Cabell, Caldwell, Felix Campbell, Candler, Carleton, Catchings, Clardy, Clements, Cobb, Cole, Compton, Comstock, Cowles, Crain, Crisp, Croxton, Culberson, Daniel, Dargan, A. C. Davidson, R. H. M. Davidson, Dawson, Dibble, Dougherty, Dunn, Fisher, Ford, Forney, C. H. Gibson, Eustace Gibson, Glass, Glover, W. J. Green, Hale, Halsell, Hammond, Harris, Heard, Hemphill, J. S. Henderson, Herbert, Hewitt, Hill, Holman, Howard, Hudd, Hutton, James, T. D. Johnston, J. H. Jones, King, Kleiner, Laffoon, Landes, Lanham, Lore, Lovering, Lowry, Mahoney, Matson, Maybury, McCreary, McMillin, McRae, Miller, Mills, Mitchell, Morgan, Morrison, Neal, Neece, Nelson, Norwood, Oates, O'Ferrall, J. J. O'Neill, Outhwaite, Peel, Perry, Reagan, Reese, Richardson, Riggs, Robertson, Rogers, Sadler, Sayers, Scott, Seymour, Shaw, Singleton, Skinner, Snyder, Springer, Charles Stewart, W. J. Stone of Kentucky, W. J. Stone of Missouri, Storm, Strait, Swope, Tarsney, Tulbee, J. M. Taylor, Throckmorton, Tillman, Townshend, Trigg, Tucker, Turner, Van Eaton, Wakefield, T. B. Ward, J. B. Weaver, Wellborn, Wheeler, Willis, Wilson, Winans, Wise, Wolford, Worthington, John G. Carlisle—140.

NAYS—G. E. Adams, C. H. Allen, J. A. Anderson, Arnot, Atkinson, Baker, Bayne, Bingham, Bliss, Bound, Boutelle, Boyle, Brady, T. M. Browne, C. E. Brown, W. W. Brown, Brummett, Buchanan, Buck, Burrows, Butterworth, J. M. Campbell, J. E. Campbell, T. J. Campbell, Cannon, Conger, Cooper, Curtin, Cutcheon, Davenport, Davis, Dingley, Dorsey, Dowdney, Dunham, Ellsberry, Ely, Ermentrout, Evans, Everhart, Farquhar, Felton, Findlay, Fleeger, Foran, Fuller, Funston, Gallinger, Gay, Geddes, Gilfillan, Goff, R. S. Green, Grosvenor, Grout, Guenther, Harmer, Hayden, D. B. Henderson, T. J. Henderson, Henley, Hepburn, Herman, Hires, Hiscock, Holmes, Hopkins, Irion, Jackson, F. A. Johnson, J. T. Johnston, Kelley, Ketcham, La Follette, Laird, Lawler, Le Fevre, Leibach, Libbey, Lindsley, Little, Long, Louttit, Lyman, Markham, Martin, McAdoo, McComas, McKenna, McKinley, Merriman, Millard, Milliken, Moffatt, Morrill, Morrow, Muller, Negley, O'Donnell, O'Hara, Charles O'Neill, Osborne, Owen, Parker, Payne, Payson, Perkins, Peters, Phelps, Pidcock, Pindar, Plumb, Price, Randall, Ranney, T. B. Reed, Rice, Rockwell, Romeis, Rowell, Ryan, Sawyer, Scranton, Seney, Sessions, Smalls, Sowden, Spooner, Spriggs, Stahlnecker, Steele, J. W. Stewart, St. Martin, E. F. Stone, Struble, Swinburne, Symes, E. B. Taylor, I. H. Taylor, Zachary Taylor, J. R. Thomas, O. B. Thomas, Thompson, Viele, Wade, Wadsworth, Wait, Wallace, J. H. Ward, A. J. Warner, William Warner, J.

A. Weaver, Weber, West, Whiting, Wilkins, Woodburn—157.

Not Voting—Aiken, Bragg, Bunnell, Burleigh, Caswell, Collins, Cox, Dockery, Eden, Eldredge, Frederick, Hall, Hanback, Hatch, Haynes, Hiestand, Hitt, Houk, J. T. Jones, Murphy, Pettibone, Pierce, J. W. Reid, Stephenson, Van Schaick, A. C. White, Milo White—27.

Of the votes in the affirmative, 135 were cast by Democrats, 4 by Republicans, and 1 by a Greenback-Democrat; of the 157 negative votes, 121 were cast by Republicans, 85 by Democrats and 1 by a Greenback-Republican. The refusal to consider this measure was conceded to be a defeat of the tariff-reform policy. The bill was not that originally introduced by Mr. Morrison, and did not embody any scheme for horizontal reduction such as the Forty-eighth Congress rejected.

Temperance Measures.—March 18, 1886, the Senate passed without a division the bill passed by the Senate of the Forty-eighth Congress providing for a commission “to investigate the alcoholic liquor-traffic, its relations to revenue and taxation, and its general economic, criminal, moral, and scientific aspects in connection with pauperism, crime, social vice, the public health, and the general welfare of the people, and also to inquire as to the practical results of license and prohibitory legislation for the prevention of intemperance in the several States of the Union.” May 6, Mr. Frederick, from the Select Committee of the House on the Alcoholic Liquor-Traffic, reported the measure adversely. A minority of the committee made a favorable report, but no further action was taken.

March 18, 1886, the Senate passed without a division the following bill:

“To provide for the study of the nature of alcoholic drinks and narcotics, and of their effects upon the human system, in connection with the several divisions of the subject of physiology and hygiene by the pupils in the public schools of the Territories and of the District of Columbia, and in the Military and Naval Academies and Indian and colored schools in the Territories of the United States.”

Be it enacted, etc., That the nature of alcoholic drinks and narcotics, and special instruction as to their effects upon the human system, in connection with the several divisions of the subject of physiology and hygiene, shall be included in the branches of study taught in the common or public schools and in the Military and Naval Schools, and shall be studied and taught as thoroughly and in the same manner as other like required branches are in said schools, by the use of text-books in the hands of pupils where other branches are thus studied in said schools, and by all pupils in all said schools throughout the Territories, in the Military and Naval Academies of the United States, and in the District of Columbia and in all Indian and colored schools in the Territories of the United States.

SECTION 2. That it shall be the duty of the proper officers in control of any school described in the foregoing section to enforce the provisions of this act; and any such officer, school director, committee, superintendent, or teacher who shall refuse or neglect to comply with the requirements of this act, or shall neglect or fail to make proper provisions for the instruction required and in the manner specified by the

first section of this act for all pupils in each and every school under his jurisdiction, shall be removed from office and the vacancy filled as in other cases.

Sec. 3. That no certificate shall be granted to any person to teach in the public schools of the District of Columbia or Territories after the 1st day of January, A. D. 1888, who has not passed a satisfactory examination in physiology and hygiene, with special reference to the nature and the effects of alcoholic drinks and other narcotics upon the human system.

May 17, 1886, the House passed this measure by a vote of 210 yeas to 8 nays, 105 members being absent. May 20, it was approved by the President.

Fitz-John Porter.—Dec. 21, 1885, Mr. Wheeler, of Alabama, introduced a bill for the relief of Fitz-John Porter, which was substantially the same as that passed at the first session of the Forty-eighth Congress and vetoed by President Arthur. January 19, it was reported favorably from the Committee on Military Affairs as follows:

Whereas the board of Army officers convened by the President of the United States, by special orders, numbered 78, headquarters of the Army, April 12, 1878, to examine into and report upon the case of Fitz-John Porter, late a major-general of the United States Volunteers and a brevet brigadier-general and colonel of the Army, having by their report of March 19, 1879, stated that, in their opinion, "justice required at his (the President's) hands such action as may be necessary to annul and set aside the findings and sentence of the court-martial in the case of Maj.-Gen. Fitz-John Porter, and to restore him to the positions of which the sentence deprived him, such restoration to take effect from the date of dismissal from the service"; and

Whereas the President, on the 4th day of May, 1882, remitted so much of the sentence of said court-martial remaining unexecuted as "forever disqualified the said Fitz-John Porter from holding any office of trust or profit under the Government of the United States"; Therefore, that justice may be done the said Fitz-John Porter, and to carry into effect the recommendation of said board,

Be it enacted, etc., That the President be and he is hereby authorized to nominate and, by and with the advice and consent of the Senate, to appoint Fitz-John Porter, late a major-general of the United States Volunteers and a brevet brigadier-general and colonel of the Army, to the position of colonel in the Army of the United States, of the same grade and rank held by him at the time of his dismissal from the Army by sentence of court-martial promulgated January 27, 1863, and, in his discretion, to place him on the retired list of the Army as of that grade, the retired list being hereby increased in number to that extent; and all laws and parts of laws in conflict herewith are suspended for this purpose only: *Provided*, That said Fitz-John Porter shall receive no pay, compensation, or allowance whatsoever prior to his appointment under this act.

The measure was debated in both House and Senate with all the old-time enthusiasm. It passed the former body, February 18, by the following vote:

YEAS—J. J. Adams, J. M. Allen, C. M. Anderson, Baker, Ballantine, Barnes, Barry, Bayne, Beach, Belmont, Bennett, Blanchard, Bland, Bliss, Blount, Bragg, C. R. Breckinridge, W. C. P. Breckinridge, Burleigh, Burns, Bynum, Cabell, Felix Campbell, J. E. Campbell, T. J. Campbell, Candler, Carleton, Catchings, Clardy, Clements, Cobb, Collins, Compton, Constock, Cowles, Crain, Crisp, Culberson, Curtin, Daniel, Dargan, A. C. Davidson, R. H. M. David-

son, Dibble, Dockery, Dougherty, Dowdney, Dunn, Eden, Eldredge, Ellsberry, Ely, Ermentrout, Findlay, Fisher, Foran, Ford, Forney, Frederick, Gay, Geddes, C. H. Gibson, R. S. Green, W. J. Green, Hahn, Hale, Hall, Halsell, Hammond, Harmer, Harris, Hatch, Hayden, Haynes, Heard, Hemphill, J. S. Henderson, Henley, Herbert, Hewitt, Holman, Howard, Hutton, Irion, James, T. D. Johnston, J. H. Jones, J. T. Jones, Kleiner, Laffoon, Laird, Lanham, Lawler, Le Fevre, Lore, Lovering, Lowry, Mahoney, Martin, Matson, Maybury, McCreary, McMillan, McRae, Merriam, Miller, Mills, Mitchell, Morgan, Morrison, Muller, Murphy, Neal, Norwood, Oates, O'Ferrall, O'Hara, J. J. O'Neill, Outhwaite, Peel, Perry, Phelps, Pidcock, Pindar, Reagan, J. W. Reid, Richardson, Riggs, Robertson, Rockwell, Rogers, Sadler, Sayers, Seney, Seymour, Singleton, Skinner, Snyder, Sowden, Springer, Stahnecker, Charles Stewart, St. Martin, W. J. Stone of Kentucky, W. J. Stone of Missouri, Storm, Swinburne, Swope, Tarsney, Taulbee, J. M. Taylor, Throckmorton, Tillman, Tucker, Van Eaton, Viele, Wadsworth, J. H. Ward, T. B. Ward, A. J. Warner, J. B. Weaver, Weber, Wellborn, Wheeler, Wilkins, Willis, Wilson, Winans, Wise, Wolford, Worthington—171.

NAYS—G. E. Adams, C. H. Allen, J. A. Anderson, Atkinson, Bingham, Bound, Boutelle, T. M. Browne, C. E. Brown, W. W. Brown, Brumm, Buchanan, Buck, Bunnell, Burrows, Butterworth, J. M. Campbell, Cannon, Caswell, Conger, Cooper, Cutcheon, Davenport, Davis, Dingley, Dorsey, Dunham, Evans, Everhart, Farquhar, Fleeger, Fuller, Funston, Gallinger, Gilfillan, Grosvenor, Grout, Guenther, Hanback, D. B. Henderson, T. J. Henderson, Hepburn, Herman, Hiestand, Hires, Hiscock, Hitt, Holmes, Hopkins, Houk, Jackson, F. A. Johnson, J. T. Johnston, Kelley, Ketcham, La Follette, Lehlbach, Lindsay, Little, Lottut, Lyman, Markham, McComas, McKenna, McKinley, Millard, Milliken, Moffatt, Morrill, Morrow, Negley, Nelson, O'Donnell, Charles O'Neill, Osborne, Owen, Parker, Payne, Payson, Perkins, Peters, Pirce, Price, T. B. Reed, Rice, Rowell, Ryan, Sawyer, Scranton, Sessions, Smalls, Spooner, Steele, Stephenson, J. W. Stewart, E. F. Stone, Strait, Struble, Symes, E. B. Taylor, I. H. Taylor, Zachary Taylor, J. R. Thomas, O. B. Thomas, Thompson, Van Schaick, Wakefield, William Warner, A. J. Weaver, West, Milo White, Whiting, Woodburn—113.

Not Voting—Aiken, Arnot, Barbour, Barksdale, Boyle, Brady, Caldwell, Cole, Cox, Croxton, Dawson, Felton, Eustace Gibson, Glass, Glover, Goff, Hill, King, Landes, Libbey, Long, McAdoo, Neece, Pettibone, Plumb, Pulitzer, Randall, Ranney, Reese, Romeis, Scott, Shaw, Spriggs, Townshend, Trigg, Turnier, Wade, Wait, A. C. White—39.

In the Senate the bill was reported March 4 and passed June 25 by the following vote:

YEAS—Beck, Berry, Blackburn, Brown, Butler, Call, Cameron, Cockrell, Coke, Colquitt, George, Gibson, Gorman, Gray, Hoar, Jones of Arkansas, Jones of Nevada, McPherson, Maxcy, Mitchell of Oregon, Pugh, Ransom, Riddleberger, Sewell, Vance, Vest, Voorhees, Walthall, Whithorne, Wilson of Maryland—30.

NAYS—Aldrich, Allison, Conger, Cullom, Evarts, Frye, Hale, Harrison, Hawley, Ingalls, Logan, Mansfield, Palmer, Sawyer, Spooner, Teller, Wilson of Iowa—17.

ABSENT—Blair, Bowen, Camden, Chace, Dawes, Dolph, Edmunds, Eustis, Fair, Hampton, Harris, Hearst, Jones of Florida, Kenn, McMillan, Mahone, Miller, Mitchell of Pennsylvania, Morgan, Morrill, Payne, Pike, Platt, Plumb, Sabin, Saulsbury, Sherman, Stanford, Van Wyck—29.

In the course of the discussion Mr. Teller, of Oregon, offered the following amendment to the bill, which was rejected:

SECTION.—That the President be and he is hereby authorized to nominate and, by and with the advice and consent of the Senate, to appoint Alfred Pleasonton, late a major-general of the United States Volunteers and a brevet major-general of the United States Army, to the position of colonel in the Army of the United States, and to place him on the retired list of the Army as of that grade, the retired list being hereby increased in number to that extent; and all laws and parts of laws in conflict herewith are suspended for this purpose only.

Mr. Plumb, of Kansas, offered the following amendment, which was rejected:

That the Secretary of the Interior is hereby authorized and directed to place on the pension-roll, subject to the provisions and limitations of the pension laws, the name of Maria Hunter, widow of David Hunter, late colonel of the Sixth Regiment United States Cavalry, and major-general of United States Volunteers, at the rate of \$50 per month.

Mr. Blair, of New Hampshire, offered the following amendment, which was rejected:

Sec. — That in all cases of applications for pensions, under the laws of the United States, which shall have been rejected on appeal from the decision of the Commissioner to the Secretary of the Interior, the claimant of the pension, or his legal representative to the right of the pension, may file his petition in the District Court of the United States in the district wherein he resides, for the pension, setting forth, with other necessary averments, the rejection of his claim by the Secretary of the Interior; and thereupon the court shall hear and try his cause, and such proceedings shall be had as in other cases, including the trial by jury whenever the claimant demands it, and the right of appeal to the higher courts upon questions of law and fact; and upon the hearing the claimant shall have the right to use all evidence, documents, and papers of every description which have been filed in the proceedings before the Commissioner of Pensions and Secretary of the Interior; and all record or other evidence in possession of the Government, or copies thereof, shall be furnished, on application by the claimant, for use in such proceedings in the district court.

Mr. Logan, of Illinois, offered the following amendment, which was rejected:

That all officers who were engaged in the battle of Bull Run, on the 29th and 30th of August, 1862, who were in command of Union troops during said battle on either of the days above mentioned, who received wounds during said engagement causing the loss of arm, leg, or eye, and who were afterward honorably discharged from the service of the United States, shall, on application and proof of the foregoing facts, be placed upon the retired list with the rank held by them at the time of receiving such wounds, whether in the regular or volunteer service. Vacancies on the retired list are hereby created for this purpose, if the President shall see fit to nominate them to the Senate and the Senate shall confirm the same.

The same gentleman offered the following proviso to be added to the original bill, but it was also rejected:

Provided, That any officer of the volunteer service who received an *honorable discharge* from the United States service for services rendered the Union during the late rebellion, and who received a wound or wounds producing total disability, or which incapacitated him from pursuing his usual avocation in procuring a livelihood, shall, on application and proof of the above facts, be placed upon the retired list with the rank held by such officer at the time of receiving the wound or wounds aforesaid: *Provided*, That the President shall see fit to nominate them to the Senate.

The President approved of the bill July 1, 1886.

Chinese Matters.—In the Senate a bill, supplementary to and amendatory of “An act to execute certain treaty stipulations relating to the Chinese,” approved May 6, 1882, as amended by an act to amend said act, approved July 5, 1884, was passed June 1, 1886, without a division; but in the House no action was taken beyond referring the measure to an appropriate committee. June 4, the Senate passed, by a vote of 30 to 10, a measure providing for the payment of indemnity to certain Chinese subjects who suffered in person and property from the violence of a mob at and near Rock Springs, Wyoming Territory, Sept. 2, 1885, the aggregate amount awarded not to exceed \$150,000. In the House, the measure got no further than a reference to a committee. The President sent to Congress the following message on the subject:

To the Senate and House of Representatives of the United States:

I transmit herewith for the consideration of Congress, with a view to appropriate legislation in the premises, a report of the Secretary of State, with certain correspondence, touching the treaty right of Chinese subjects other than laborers, “to go and come of their own free will and accord.”

In my annual message of the 8th of December last I said:

“In the application of the acts lately passed to execute the treaty of 1880, restrictive of the immigration of Chinese laborers in the United States, individual cases of hardship have occurred beyond the power of the Executive to remedy, and calling for judicial determination.”

These cases of individual hardship are due to the ambiguous and defective provisions of the acts of Congress approved respectively on May 6, 1882, and July 5, 1884. The hardship has, in some cases, been remedied by the action of the courts. In other cases, however, where the phraseology of the statutes has appeared to be conclusive against any discretion on the part of the officers charged with the execution of the law, Chinese persons expressly entitled to free admission under the treaty have been refused a landing and sent back to the country whence they came, without being afforded any opportunity to show in the courts or otherwise their right to the privilege of free ingress and egress which it was the purpose of the treaty to secure.

In the language of one of the judicial determinations of the Supreme Court of the United States, to which I have referred, “the supposition should not be indulged that Congress, while professing to faithfully execute the treaty stipulations, and recognizing the fact that they secure to a certain class the right to go from and come to the United States, intended to make its protection depend upon the performance of conditions which it was physically impossible to perform. (U. S. R. 112, p. 554, *Chew Heong vs. U. S.*)

The act of July 5, 1884, imposes such an impossible condition in not providing for the admission, under proper certificate, of Chinese travelers of the exempted classes in the cases most likely to arise in ordinary commercial intercourse.

The treaty provisions governing the case are as follows:

“ARTICLE I. . . . The limitation or suspension shall be reasonable, and shall apply only to Chinese who may go to the United States as laborers, other classes not being included in the limitations. . . .

“Art. II. Chinese subjects, whether proceeding to the United States as teachers, students, merchants, or

from curiosity, together with their body and household servants, . . . shall be allowed to go and come of their own free will and accord, and shall be accorded all the rights, privileges, immunities, and exemptions which are accorded to the citizens and subjects of the most favored nation."

Section 6 of the amended Chinese immigration act of 1884 purports to secure this treaty right to the exempted classes named by means of prescribed certificates of their status, which certificates shall be the *prima facie* and the sole permissible evidence to establish a right of entry into the United States. But it provides in terms for the issuance of certificates in two cases only:

(a) Chinese subjects departing from a port of China; and

(b) Chinese persons (i. e., of the Chinese race) who may at the time be subjects of some foreign government other than China, and who may depart for the United States from the ports of such other foreign government.

A statute is certainly most unusual which, purporting to execute the provisions of a treaty with China in respect of Chinese subjects, enacts strict formalities as regards the subjects of other governments than that of China.

It is sufficient that I should call the earnest attention of Congress to the circumstance that the statute makes no provision whatever for the somewhat numerous class of Chinese persons who, retaining their Chinese subjection in some countries other than China, desire to come from such countries to the United States.

Chinese merchants have trading operations of magnitude throughout the world. They do not become citizens or subjects of the country where they may temporarily reside and trade; they continue to be subjects of China, and to them the explicit exemption of the treaty applies. Yet, if such a Chinese subject, the head of a mercantile house at Hong-Kong, or Yokohama, or Honolulu, or Havana, or Colon, desires to come from any of these places to the United States he is met with the requirement that he must produce a certificate, in prescribed form and in the English tongue, issued by the Chinese Government. If there be at the foreign place of his residence no representative of the Chinese Government competent to issue a certificate in the prescribed form, he can obtain none, and is under the provisions of the present law unjustly debarred from entry into the United States. His usual Chinese passport will not suffice, for it is not in the form which the act prescribes shall be the sole permissible evidence of his right to land. And he can obtain no such certificate from the government of his place of residence, because he is not a subject or citizen thereof, "at the time," or at any time.

There being, therefore, no statutory provision prescribing the terms upon which Chinese persons, resident in foreign countries but not subjects or citizens of such countries, may prove their status and rights as members of the exempted classes in the absence of a Chinese representative in such country, the Secretary of the Treasury, in whom the execution of the act of July 5, 1884 was vested, undertook to remedy the omission by directing the revenue officers to recognize as lawful certificates those issued in favor of Chinese subjects by the Chinese consular and diplomatic officers at the foreign port of departure, when visaged by the United States representative thereat. This appears to be a just application of the spirit of the law, although enlarging its letter, and in adopting this rule he was controlled by the authority of high judicial decisions as to what evidence is necessary to establish the fact that an individual Chinaman belongs to the exempted class.

He, however, went beyond the spirit of the act and the judicial decisions, by providing, in a circular dated Jan. 14, 1885, for the original issuance of such a certificate by the United States consular officer at the port of departure, in the absence of a Chinese

diplomatic or consular representative thereat. For it is clear that the act of Congress contemplated the intervention of the United States consul only in a supervisory capacity, his function being to check the proceeding and see that no abuse of the privilege followed. The power or duty of original certification is wholly distinct from that supervisory function. It either dispenses with the foreign certificate altogether, leaving the consular visa to stand alone and sufficient, or else it combines in one official act the distinct functions of certification and verification of the fact certified.

The official character attaching to the consular certification contemplated by the unamended circular of Jan. 14, 1885, is to be borne in mind. It is not merely *prima facie* evidence of the status of the bearer, such as the courts may admit in their discretion; it was prescribed as an official attestation, on the strength of which the customs officers at the port of entry were to admit the bearer without further adjudication of his status unless question should arise as to the truth of the certificate itself.

It became, therefore, necessary to amend the circular of Jan. 14, 1885, and this was done on the 13th of June following, by striking out the clause prescribing original certification of status by the United States consuls. The effect of this amendment is to deprive any certificate the United States consuls may issue, of the value it purported to possess, as sole permissible evidence under the statute when its issuance was prescribed by Treasury regulations. There is, however, nothing to prevent consuls giving certificates of facts within their knowledge, to be received as evidence in the absence of statutory authentication.

The complaint of the Chinese minister, in his note of March 24, 1886, is that the Chinese merchant, Lay Sang, of the house of King Lee & Co., of San Francisco, having arrived at San Francisco from Hong-Kong, and exhibited a certificate of the United States consul at Hong-Kong as to his status as a merchant and consequently exempt under the treaty, was refused permission to land, and was sent back to Hong-Kong by the steamer which brought him. While the certificate he bore was doubtless insufficient under the present law, it is to be remembered that there is at Hong-Kong no representative of the Government of China competent or authorized to issue the certificate required by the statute. The intent of Congress to legislate in execution of the treaty, is thus defeated by a prohibition directly contrary to the treaty; and conditions are exacted which, in the words of the Supreme Court hereinbefore quoted, "it was physically impossible to perform."

This anomalous feature of the act should be reformed as speedily as possible, in order that the occurrence of such cases may be avoided, and the imputation removed which would otherwise rest upon the good faith of the United States in the execution of their solemn treaty engagements.

GROVER CLEVELAND.

EXECUTIVE MANSION,
WASHINGTON, April 6, 1886.

Pensions.—Jan. 20, 1886, the House took up for consideration the bill to increase the pension of widows, minor children, and dependent relatives of soldiers and sailors. Mr. Matson, of Indiana, who had charge of the measure, said:

"The bill which has been read has been very thoroughly considered by the Committee on Invalid Pensions in this Congress and reported unanimously by that committee. The same committee in the Forty-eighth Congress considered the same proposition and reported it unanimously. The provisions of the bill are very simple. It provides that widows of sol-

diers—not of officers, but of soldiers—who are receiving a less rate of pension than \$12 per month shall be increased to \$12 per month. The increase in nearly all cases is from \$8 to \$12 per month. There are a very few cases, perhaps less than twenty in number, upon the pension-roll, in cases of the widows of warrant officers of the navy, where \$10 per month is given, but the substantial provision of this bill is an increase of pensions of widows of soldiers from \$8 a month to \$12 a month.

"The provisions of the bill also apply to dependent fathers and mothers who are drawing pensions on account of the death of their sons.

"I apprehend the proposition in reference to which this House wishes to be informed is as to what this is going to cost the people and the Government. A very careful estimate was made less than two years since, based upon the number of this class of pensioners upon the roll, an estimate based, too, upon the number of applications then pending of that kind, and the total cost was estimated by a gentleman who was thoroughly familiar with the Pension-Office, having served there for twenty years, and having been chief of the miscellaneous division, whose duty it was to make such estimate for the benefit of the Commissioner of Pensions and the Secretary of the Interior, and he fixed the cost at something over \$5,000,000—less than \$6,000,000.

"I wish to say further in relation to this matter that this rate of \$8 was passed in 1816, just after the War of 1812, and at that time it was the full pay of the soldier. This Government thought then when the soldier was killed in battle, or gave his life to the country in any way, his widow should be entitled to receive the pay her husband was receiving when he was in the Government service. Since that time the pay of a private soldier has been increased and has varied from \$11 to \$13 and up to \$16 a month. The proposition has been urged upon Congress to follow out the original principle, and to give to these widows and dependent parents the same pay that the soldier was receiving at the time he lost his life; but the committee thought it fit and wise to compromise by adopting a sum which bore a relation between the two extremes which had been paid, and therefore we have fixed upon a sum that is between the highest and the lowest rates paid for the service of the soldier, \$8 being the lowest and \$16 the highest.

"There is another thing, Mr. Chairman, to which I desire to call the attention of the committee, and that is that this bill applies to all widows of the soldiers of the wars in which this country has been engaged who are now on the rolls, and there is not a community throughout all the length and breadth of this land in which there is not some humble home in which light and joy will be shed by the action of this Congress in passing this bill. Eight dollars a month at this time, when it costs more to live than it did when the rate was fixed by

law, is not enough to support these old people. These widows and dependent relatives are growing old. I have received, I may safely say, since this proposition has been pending in Congress, thousands of letters from all parts of the country from these old women addressed to me, some of the writers stating that they were then over ninety years of age, all of them begging and asking this additional four dollars a month in order to enable them to live comfortably, or with a little more comfort, during the few remaining years of their lives. Now I have said this much in explanation of this bill, and I apprehend that there will be no very serious opposition to its passage."

In criticism of the measure, Mr. Reagan, of Texas, said :

"The policy of pensioning soldiers who have been disabled in the military service of the country and thereby rendered unable to earn a livelihood and support their families, the policy of pensioning the widows of such soldiers who have lost their lives in the service—I mean those who were their widows at that time—is a just and beneficent policy. No one would more cheerfully than myself vote pensions for such soldiers and such widows. We have pension laws providing, it would seem, for all the conditions that appeal to public justice. And yet, notwithstanding these laws, notwithstanding the Pension-Office is open to all entitled to pensions under the laws, we have a deluge of private bills for pensioning the soldiers of the war, or those who profess to be soldiers of the war, each session of Congress. And instead of the number diminishing, it is constantly increasing.

"I witnessed a scene on this floor in passing a bill giving arrearages of pension, I believe it was, when Democrats were urged to vote for it by Democrats, because it would give them the soldier-vote, as the Senate would defeat it anyhow; and Republicans were urged by Republicans to vote for it as they would get ahead of the Democrats for the soldier-vote, and because the Senate would defeat it anyhow. It went through this House, as any bill will go through this House that proposes a pension, and when it got to the Senate it went through that body with as great unanimity as it did through this.

"Now, Mr. Chairman, I had a friend in Congress a few years ago from the State of Kentucky, who had in mind a proposition which he thought would settle all this trouble, satisfy all parties; adjust the political trouble. It proposed to pension everybody in the United States, and give life-pay to retiring members of Congress. This, it seems to me, was a good bid. It seems when we are struggling for political power, if I should make this bid I would go as far as anybody could go to benefit my party by pensioning everybody and giving life-pay to retiring members of Congress.

"But what is this to come to? No one can doubt, no one will doubt, that I am correct in saying instead of the supreme and sole motive

being to secure justice to those who deserve a pension, a motive as strong as that, I would say stronger, is to bid for the soldiers' votes, and to pay the money of the tax-payers of this country as the price of political supremacy. We proceed here as if there were no tax-payers in this country. We proceed here as if there were a great fund of money collected together, and we were engaged in its distribution. But, Mr. Chairman, there are millions of toilers in this land, poor, afflicted, with families to support, earning their bread from day to day by their sweat, who have to pay taxes for every appropriation which we make. And I assume to warn members that we may reach the point at which the public judgment will revolt against this outrage of giving the public money for political supremacy, of taxing the people's sweat and toil, and giving away their money in this manner.

"Who has ever known one of these bills come up for consideration who has not seen this same thing enacted and re-enacted here? I will repeat, sir, what I said before, that the soldiers who are disabled in war ought to be pensioned, and I will vote as cheerfully as any man for every reasonable and proper pension for them, and also that those who are the widows of such soldiers, and were their wives when they were soldiers, or where the soldier lost his life in the public service, should be pensioned. No man will vote more cheerfully or readily than I a proper pension for such service; but I would drive the thousands who come here to these halls into the Pension-Office to make there the proof required by law to enable them to secure their pensions. I would not allow them to come here upon *ex parte* statements to play upon political feelings and obtain pensions in the name or on account of those who have really rendered service to the country. There is not a man here who does not know, I presume, that there are numbers of men receiving pensions to-day, I think I may safely say thousands, who are no more entitled to it than I am."

Feb. 1, Mr. Matson moved to take the bill out of Committee of the Whole and pass it with an amendment, limiting its application to widows married to a deceased soldier or sailor, prior to the passage of the act, or prior to or during his service. The motion was adopted by the following vote:

YEAS—G. E. Adams, C. H. Allen, C. M. Anderson, J. A. Anderson, Arnott, Atkinson, Baker, Bayne, Beach, Bland, Bound, Bouteille, Brady, T. M. Browne, C. E. Brown, W. W. Brown, Buchanan, Buck, Bunnell, Burleigh, Burrows, Butterworth, Bynum, J. M. Campbell, J. E. Campbell, T. J. Campbell, Cannon, Carleton, Caswell, Catchings, Clardy, Cobb, Cole, Compton, Comstock, Conger, Cooper, Curtin, Cutcheon, Davis, Dingley, Dockery, Dorsey, Dowdney, Dunham, Eden, Eldredge, Ellsberry, Ely, Ermentrout, Evans, Everhart, Farquhar, Findlay, Fisher, Fleeger, Foran, Ford, Frederick, Fuller, Funston, Gallinger, Gay, Geddes, Gilfillan, Glover, Goff, R. S. Green, Grout, Hahn, Hale, Hall, Halsell, Hanback, Harmer, Hatch, Hayden, Haynes, Heard, D. B. Hen-

derson, T. J. Henderson, Hepburn, Herman, Hiestand, Hill, Hires, Holman, Holmes, Hopkins, Houk, Hutton, Jackson, James, F. A. Johnson, J. T. Johnston, Ketcham, King, Kleiner, La Follette, Laird, Landes, Le Fevre, Lehlbach, Little, Long, Louttit, Lovering, Lowry, Lyman, Markham, Matson, Maybury, McAdoo, McComas, McCreary, McKenna, McKinley, Millard, Milliken, Mitchell, Moffatt, Morrill, Morrison, Morrow, Murphy, Neal, Neece, Negley, Nelson, O'Donnell, O'Hara, Osborne, Outhwaite, Owen, Payne, Payson, Perkins, Peters, Pindar, Pirce, Plumb, Price, Randall, Ranney, T. B. Reed, Rice, Riggs, Robertson, Rockwell, Romeis, Rowell, Ryan, Sawyer, Scott, Scranton, Sessions, Seymour, Shaw, Snyder, Sowden, Spooner, Springer, Stahlnecker, Steele, E. F. Stone, W. J. Stone of Missouri, Storm, Strait, Struble, Swope, Symes, Tarsney, Taubbee, E. B. Taylor, Zachary Taylor, J. R. Thomas, O. B. Thomas, Thompson, Van Eaton, Viele, Wadsworth, Wait, Wakefield, J. H. Ward, William Warner, A. J. Weaver, J. B. Weaver, Weber, West, A. C. White, Milo White, Whiting, Wilkins, Willis, Wilson, Winans, Wolford, Worthington—198.

NAYS—J. M. Allen, Ballantine, Barnes, Bennett, Blanchard, Blount, Bragg, C. R. Breckinridge, W. C. P. Breckinridge, Cabell, Clements, Cowles, Cox, Crain, Crisp, Croxton, Culberson, Daniel, Dargan, A. C. Davidson, R. H. M. Davidson, Dibble, Dougherty, Forney, Glass, Hammond, Harris, Hemphill, J. S. Henderson, Herbert, Hewitt, Irion, T. D. Johnston, J. H. Jones, J. T. Jones, Laffoon, Lanham, Martin, McMillin, McRae, Miller, Mills, Morgan, Oates, O'Farrell, Peel, Perry, Reagan, J. W. Reid, Reese, Richardson, Sadler, Sayers, Singleton, Skinner, Charles Stewart, St. Martin, W. J. Stone of Kentucky, J. M. Taylor, Throckmorton, Tillman, Trigg, Tucker, Turner, Wellborn, Wheeler—66.

NOR VOTING—J. J. Adams, Aiken, Barbour, Barkdale, Barry, Belmont, Bingham, Bliss, Boyle, Brumm, Burnes, Caldwell, Felix Campbell, Candler, Collins, Davenport, Dawson, Dunn, Felton, C. H. Gibson, Eustace Gibson, W. J. Green, Grosvenor, Guenther, Henley, Hiscock, Hitt, Howard, Kelly, Lawler, Libbey, Lindsley, Lore, Mahoney, Merriman, Muller, Norwood, Charles O'Neill, J. J. O'Neill, Parker, Pettibone, Phelps, Pidcock, Pulitzer, Rogers, Sene, Smalls, Spriggs, Stephenson, J. W. Stewart, Swinburne, I. H. Taylor, Townshend, Van Schaick, Wade, T. B. Ward, A. J. Warner, Wise, Woodburn—59.

The text of the measure as passed is as follows:

Be it enacted, etc., That from and after the passage of this act the rate of pension for widows, minor children, and dependent relatives now on the pension-roll, or hereafter to be placed on the pension-roll, and entitled to receive a less rate than hereinafter provided, shall be \$12 per month; and nothing herein shall be construed to affect the existing allowance of \$2 per month for each child under the age of sixteen years. *Provided,* That this act shall apply only to widows who were married to the deceased soldier or sailor prior to its passage and to those who may hereafter marry prior to or during the service of the soldier or sailor. And all acts or parts of acts inconsistent with the provisions of this act are hereby repealed.

SECTION 2. That no claim agent or attorney shall be recognized in the adjudication of claims under this act, nor shall any such person be entitled to receive any compensation whatever for services or pretended services in making applications thereunder.

In the Senate the bill was reported by Mr. Van Wyck, of Nebraska, from the Committee on Pensions, with an amendment increasing the allowance to minor children to four dollars per month. In Committee of the Whole, March 15 and 16, this amendment and another proposed by Mr. Van Wyck, pensioning an insane, idiotic,

or otherwise helpless minor child during the continuance of disability, were adopted, but they were afterward thrown out by the Senate. An amendment offered by Mr. Ingalls, of Kansas, providing for arrearages, and one offered by Mr. Butler, of South Carolina, for pensioning Mexican War veterans, were also rejected. The Senate then passed the House bill March 16, without a division. The President approved of the measure March 22, 1886.

March 1, 1886, Mr. Eldredge, of Michigan, moved to suspend the rules and pass the following bill for pensioning veterans of the Mexican War as reported from the Committee on Pensions :

Be it enacted, etc., That the Secretary of the Interior be and he is hereby authorized and directed to place the names of all the surviving officers, soldiers, and sailors who enlisted and served in the war with Mexico for any period during the years 1845, 1846, 1847, 1848, and were honorably discharged, and their surviving widows, on the pension-roll, at the rate of \$8 per month, from and after the passage of this act, during their lives.

SECTION 2. That the Secretary of the Interior is authorized and directed to make such rules and regulations as are necessary to carry this act into effect: *Provided*, That where it shall appear that a discharge is lost, secondary evidence may be permitted; and where it shall appear an applicant has received a land-warrant, that shall be sufficient evidence of an honorable discharge, unless the evidence shows that he procured it by fraud: *And provided further*, That this act shall not apply to persons under political disabilities.

April 5, the motion was carried by the following vote :

YEAS—C. H. Allen, C. M. Anderson, Baker, Ballantine, Barbour, Barksdale, Barnes, Barry, Beach, Bennett, Blanchard, Bland, Bound, Boyle, Brady, C. R. Breckinridge, W. C. P. Breckinridge, Burnes, Bynum, J. E. Campbell, Candler, Catchings, Clardy, Clements, Cobb, Cole, Conger, Cooper, Cowles, Cox, Crain, Crisp, Croxton, Curtin, A. C. Davidson, R. H. M. Davidson, Dibble, Dockery, Eden, Eldredge, Ellsberry, Farquhar, Findlay, Fisher, Fleeger, Foran, Ford, Forney, Fuller, Funston, Gay, Geddes, C. H. Gibson, Glass, Glover, Goff, R. S. Green, W. J. Green, Hale, Hall, Halsell, Hatch, Hayden, Heard, D. B. Henderson, J. S. Henderson, Henley, Herbert, Herman, Hiestand, Hill, Holman, Holmes, Howard, Hutton, Irion, J. T. Johnston, T. D. Johnston, J. H. Jones, J. T. Jones, King, Kleiner, Laird, Landes, Lanham, Lawler, Le Fevre, Lore, Lovering, Lowry, Markham, Martin, Matson, McAdoo, McCreary, McMillin, McRae, Morrill, Morrow, Murphy, Neal, Neece, Negley, Nelson, O'Ferrall, O'Hara, J. J. O'Neill, Owen, Payson, Peel, Peters, Plum, Randall, J. W. Reid, Richardson, Robertson, Rogers, Ryan, Sadler, Sayers, Seney, Seymour, Shaw, Singleton, Skinner, Smalls, Snyder, Sowden, Springer, Stahlnecker, Charles Stewart, W. J. Stone of Missouri, Storm, Swope, Symes, Taulbee, J. M. Taylor, Thompson, Tucker, Viele, Wade, Wadsworth, Wakefield, J. H. Ward, William Warner, A. J. Weaver, J. B. Weaver, Wellborn, Wheeler, A. C. White, Milo White, Wilkins, Willis, Wilson, Wolford, Worthington—156.

NAYS—G. E. Adams, Arnot, Bayne, Blount, Bouetelle, Bragg, T. M. Browne, Brunn, Buck, Bunnell, Burleigh, Cutcheon, Daniel, Davis, Dawson, Dingley, Dorsey, Dunham, Ely, Everhart, Felton, Gallinger, Gilfillan, Grout, Guenther, Hammond, Harris, Haynes, Hemphill, T. J. Henderson, Hewitt, Hiscock, Hitt, Hopkins, James, La Follette, Long, Lyman, McComas,

McKinley, Millard, Norwood, O'Donnell, Charles O'Neill, Osborne, Parker, Payne, Perkins, Perry, Phelps, Price, Reagan, T. B. Reed, Romeis, Scranton, Sessions, Steele, Stephenson, J. W. Stewart, E. F. Stone, Swinburne, E. B. Taylor, O. B. Thomas, Tillman, Turner, Wait, A. J. Warner, Whiting—68.

Not VOTING—J. J. Adams, Aiken, J. M. Allen, J. A. Anderson, Atkinson, Belmont, Bingham, Bliss, C. E. Brown, W. W. Brown, Buchanan, Burrows, Butterworth, Cabell, Caldwell, Felix Campbell, J. M. Campbell, T. J. Campbell, Cannon, Carleton, Caswell, Collins, Compton, Comstock, Culberson, Dargan, Davenport, Dougherty, Dowdney, Dunn, Ermentrout, Evans, Frederick, Eustace Gibson, Grosvenor, Hanback, Harmer, Hepburn, Hires, Houk, Hudd, Jackson, F. A. Johnson, Kelley, Ketcham, Laffoon, Lehmbach, Libbey, Lindsley, Little, Louttit, Mahoney, Maybury, McKenna, Merriman, Miller, Milliken, Mills, Mitchell, Moffatt, Morgan, Morrison, Muller, Oates, Outhwaite, Pettibone, Pidcock, Pindar, Pirce, Pulitzer, Ranney, Reese, Rice, Riggs, Rockwell, Rowell, Sawyer, Scott, Spooner, Spriggs, St. Martin, W. J. Stone of Kentucky, Strait, Struble, Tarsney, I. H. Taylor, Zachary Taylor, J. R. Thomas, Throckmorton, Townshend, Trigg, Van Eaton, Van Schaick, T. B. Ward, Weber, West, Winans, Wise, Woodburn—99.

In the Senate, May 18, 1886, Mr. Blair, of New Hampshire, reported the following substitute from the Committee on Pensions :

Be it enacted, etc., That the Secretary of the Interior be and he is hereby authorized and directed to place on the pension-roll the names of the surviving officers and enlisted men, including marines, militia, and volunteers, of the military and naval services of the United States, who, being duly enlisted, actually served sixty days with the Army or Navy of the United States in Mexico, or on the coast or frontier thereof, or *en route* thereto, in the war with that nation, or were actually engaged in a battle in said war, and were honorably discharged, and to such other officers and soldiers and sailors as may have been personally named in any resolution of Congress for any specific service in said war, and the surviving widows of such officers and enlisted men: *Provided*, That such widows have not remarried: *Provided*, That every such officer, enlisted man, or widow who is or may become sixty-two years of age, or who is or may become subject to any disability or dependency equivalent to some cause prescribed or recognized by the pension laws of the United States as a sufficient reason for the allowance of a pension, shall be entitled to the benefits of this act; but it shall not be held to include any person not within the rule of age or disability or dependency herein defined, or who incurred such disability while in any manner voluntarily engaged in or aiding or abetting the late rebellion against the authority of the United States.

SECTION 2. That pensions under section 1 of this act shall be at the rate of \$8 per month, and payable only from and after the passage of this act, for and during the natural lives of the persons entitled thereto, or during the continuance of the disability for which the same shall be granted: *Provided*, That section 1 of this act shall not apply to any person who is receiving a pension at the rate of \$8 per month or more, nor to any person receiving a pension of less than \$8 per month, except for the difference between the pension now received (if less than \$8 per month) and \$8 per month.

SEC. 3. That before the name of any person shall be placed on the pension-roll under this act proof shall be made, under such rules and regulations as the Secretary of the Interior may prescribe, of the right of the applicant to a pension; and any person who shall falsely and corruptly take any oath required under this act shall be deemed guilty of perjury; and the Secretary of the Interior shall cause to be stricken from the pension-roll the name of any person whenever it shall be made to appear by proof satisfactory

to him that such name was put upon such roll through false and fraudulent representations, and that such person is not entitled to a pension under this act. The loss of the certificate of discharge shall not deprive any person of the benefits of this act, but other record evidence of enlistment and service and of an honorable discharge may be deemed sufficient: *Provided*, That when any person has been granted a land-warrant, under any act of Congress, for and on account of service in the said war with Mexico, such grant shall be *prima facie* evidence of his service and honorable discharge; but such evidence shall not be conclusive, and may be rebutted by evidence that such land-warrant was improperly granted.

Sec. 4. That the pension laws now in force, which are not inconsistent or in conflict with this act, are hereby made a part of this act, so far as they may be applicable thereto.

Sec. 5. That section 4716 of the Revised Statutes is hereby repealed, so far as the same relates to this act, or to pensioners under this act.

Sec. 6. That the provisions of this act shall not apply to any person while under the political disabilities imposed by the fourteenth amendment to the Constitution of the United States.

July 12 this measure was passed by the Senate without a division. The section of the Revised Statutes to be repealed by section 5 of this act forbids the payment of any money, on account of pensions, to any person engaged in the late rebellion against the Government, or to the widow, children, or heirs of such person deceased. July 13, the Senate bill as passed was referred to the House Committee on Pensions, and no further action was taken.

In the Senate, by a vote of 34 to 14, a bill was passed May 18, 1886, entitled "A bill for the relief of soldiers of the late war, honorably discharged after three months' service, who are disabled and dependent upon their own labor for support, and of dependent parents of soldiers who died in the service, or from disabilities contracted therein." It provides that every person specified in the several classes enumerated in section 4693 of the Revised Statutes, who served either in the land or naval forces of the United States during the war of the rebellion for a period of three months, shall receive a pension, in case he has become disabled without any fault of his own, and is dependent upon his own labor for support, or upon the contributions of others not legally bound thereto; that after due proof of such disability he shall be placed on the pension-list, receiving a pension proportionate to the degree of such disability, the highest rate of pension being \$24 a month for total incapacity, and no rate lower than \$4 being granted; that no person entitled to an invalid pension, or receiving such pension under the general act to a greater amount than that provided for in the special act shall receive the benefit of the latter; that the dependency of parents shall be considered established by the fact that they are without means of comfortable support other than their own labor or the contributions of those not legally bound thereto; that the fact of regular enlistment and mustering into the service shall be conclusive evidence of soundness at the time of enlistment, unless in

cases of fraud; that no person shall be entitled to more than one pension at a time, unless the act under which a second pension is claimed shall make a special declaration to that effect. The debate on the measure ran in the usual lines of such discussion. In the House, June 15, a substitute for the Senate bill was reported from the Committee on Pensions. It provides for a pension at the rate of \$12 a month for total inability to earn a subsistence, on the part of an honorably discharged soldier or sailor who served in the war of the rebellion for three months, on condition that the disability be not due to gross carelessness or vicious habits. It also imposes restrictions in regard to the fees to be collected by agents and attorneys. With the introduction of the substitute the matter rested.

May 25, 1886, the Senate passed without a division a bill granting, for the loss of a hand or foot or total disability therein, a pension of \$30 a month; for the loss of an arm at or above the elbow, and a leg at or above the knee, \$36 a month; for the loss of an arm at the shoulder, or a leg at the hip-joint, \$45. The bill was favorably reported in the House, only a mere verbal amendment being offered by the Committee on Invalid Pensions. Aug. 2, the House passed the measure, which the President approved.

June 18, 1886, the Senate passed without a division a bill increasing the rate of pensions to minor children from \$2 to \$4. No action was taken in the House.

May 5, 1886, Mr. Laird, from the Committee on Military Affairs, reported a bill providing that, in cases where re-enlisted veterans in the late war had been discharged, to receive promotion, they shall be paid full veteran bounty; that in cases where men prior to re-enlistment were discharged to receive commissions, they shall be entitled to whatever bounty they should have received if they had served out their regular term of enlistment; that soldiers honorably discharged on account of disease shall receive the same bounty as those honorably discharged on account of wounds; that any deductions made in the settlement with men of either class shall be refunded; and that in case of the death of any person entitled to the benefit of the act, his widow, heir, or legal representative shall be entitled to the sum due to him. Various amendments were suggested, and a whole day was wasted in filibustering to prevent progress. Subsequently the measure did not come up for consideration.

June 22, 1886, Mr. Morrison, from the Committee on Rules, reported a new rule providing that, whenever a bill was introduced to raise rates or amounts of pensions or add new clauses to the pension-lists, it should be in order to move to amend so as to provide by taxation or otherwise for the increased expense, the fund so provided not to be applied to any other purpose. A motion to lay the proposed rule on the table failed by a vote of 127 to 139,

the negative vote being exclusively Democratic and only a few Democrats voting in the affirmative. June 23, on the question of considering the rule, the vote stood 132 to 116; but the Republicans prevented a final vote by filibustering.

Congress passed 747 pension bills, of which the President approved 491, while 154 became laws without signature, 101 were vetoed, and one remained unsigned at the time of adjournment. The private pension bills vetoed by the President were the subject of much warm discussion. Many of the veto messages were severe, impugning the action of Congress and the motives of the pension-seekers; and in every case where bills originated in the Senate and in some where they originated in the House, the Committees on Pensions made reports setting forth facts to show that the President had acted under a misapprehension. In several cases attempts were made to pass special pension bills over the President's veto, and though a majority in Senate and House seemed disposed to do so, there was only one case, that of Joseph Romiser, in which the veto was overridden. The vote on the re-passage of the bill in the House was 175 to 38, and the vote in the Senate 50 to 0.

Labor Questions.—May 9, 1886, by a vote of 251 to 8, the House passed a bill prohibiting the letting out on contract of the labor of criminals incarcerated in any prison for violation of any of the laws of the United States, making such letting out of prison-labor a misdemeanor punishable by imprisonment for from one to three years, or a fine of from \$500 to \$1,000, for each offense. In the Senate the measure did not progress beyond a reference to a committee.

In the Senate, June 1, 1886, Mr. Miller, of New York, moved to consider the bill making eight hours a day's labor for letter-carriers, and declaring that there shall be no reduction of their wages on account of the limitation of their hours of labor. The bill was taken up and passed without a division. It did not come to a vote in the House.

In the House, April 3, 1886, the Committee on Labor reported a bill "to provide a method for settling controversies and differences between railroad corporations engaged in interstate and territorial transportation of property or passengers and their employés." The bill provided that, in cases where a difference occurs between such a railroad as described in the title and its employés, which difference may hinder, impede, or obstruct the transportation of property or passengers, upon written agreement to submit the difference to arbitration the railroad company shall choose one arbitrator and the employés another, both of whom shall select a third, the three together to constitute a board of arbitration. The arbitrators are to act under oath, and to have power to summon witnesses, compel attendance, examine books and papers, with authority akin

to that of United States commissioners. A majority of the board may give an award; and the board is to organize, at a point as near as possible to the origin of the difficulty, and hear and determine the matters of difference submitted to them, receiving statements from the parties, examining them on oath, and allowing them the advantage of counsel. The award, when made, is to be filed with the United States Commissioner of Labor Statistics. Any employés engaged in such controversy shall be entitled to choose one or more persons to represent them either in selecting an arbitrator or before the board. Allowances are made for the payment of arbitrators, witnesses, and marshals engaged in the settlement of the controversy, the expenses in no single case to exceed \$1,000. The measure was debated at length in the House. It was criticised by conservative members as unconstitutional; the labor-men objected to it as worthless. Mr. Foran, of Ohio, said in their behalf:

"Without stopping to inquire into the constitutionality of such a law, the principle involved is so abhorrent to every sense of justice and right that I recoil from it with horror. I am not prepared to give the judges of the courts of the United States the right to imprison men for contempt, to coerce by the military arm of the Government men who are honestly contending for a principle they believe to be right. Compulsory arbitration would so fetter and shackle labor that its freedom and its right to organize for self-protection would eventually disappear. As to the bill now before the House, which is a substitute for the bill introduced by the gentleman from Missouri (Mr. O'Neill) yesterday, I am not prepared to say that I will vote against it; I may possibly vote for it, for the same reason that I would drink a glass of water—it might do me no good, but it would certainly do me no harm. It will injure nobody to pass this bill; we may safely vote for it. If it will not benefit labor, it certainly will not injure it. It is a very harmless measure, but there is no arbitration in it. There is less of the principle of arbitration in this bill than there is flesh upon the dried and bleached bones of a doctor's anatomical skeleton. The gentleman from Pennsylvania (Mr. Kelley) thinks some one may be deceived by it. I think that is hardly possible."

"The trouble with this bill is it accomplishes nothing because it provides for nothing that does not now exist. Take the present difficulty in the Southwest, for instance. Suppose this bill was in force as a law when that trouble arose, and the Knights of Labor submitted to Mr. Gould a proposition to arbitrate the matters in controversy, would he have acceded? We know he would not. He was asked to arbitrate, but refused. If he now partially consents to such a course, it is because he has become convinced that it is to his interest to do so, not because he favors the principle of arbitration or because he has any love for the

Knights of Labor. But suppose you pass this bill, what do you accomplish?

"If both parties to a controversy agree to arbitrate under its provisions, the board for which it provides becomes a board of investigation and inquiry. It can publish its findings of fact and give its opinion as to who is right or who is wrong. And there it stops; it can go no further. This might be of some utility and benefit if in every case of controversy the investigation could be had. But either party can refuse to be investigated. Then what does the bill accomplish that may not be accomplished without it? But suppose the board is appointed and the investigation had, the corporation can ignore its findings and sneer at its recommendations. But it will be claimed that an enlightened public opinion will force the party in the wrong to respect that opinion and accede to its judgment. If this be true, then the bill should be so perfected as to compel the investigation, not the arbitration, in every instance."

In favor of the measure, Mr. Long, of Massachusetts, said :

"I am for this bill because it is by no means so valueless as has been represented. It has other virtues than the virtue of being merely harmless. The bill is a positive force. It does something more than simply declare, what is already true, that one man having a grievance against another may enter into an arbitration over it with him if both agree to do so. What I say is this: If, without this law, any humble employé of a powerful railroad corporation should to-day ask that corporation to enter into an arbitration with him over a difference between them, the chances, as you know, are a hundred to one that in any ordinary case the corporation would decline and would wave him away. You also know—such is the power of the expression of the representatives of the people, such is the power of an act of the American Congress—that if you pass this bill, then let the humblest workingman demand of the corporation that employs him an arbitration, let him demand it under the sanction of an act of Congress, and the chances are a hundred to one that it will be granted, or that, to avoid refusing it, an adjustment will be made. In that way you insure to him a hearing; and let me say—and I say this to the credit of the wisdom of the Committee on Labor—you insure it to him pretty much as substantially as if you had put a compulsory provision into the bill.

"Pass this bill with this fifth section in it, and you provide that the employé, however poor, engaging in an arbitration of this character shall have the expense of his arbitrators, of his witnesses, of the clerk, of the stenographer—all the expenses of the arbitration—paid out of the United States Treasury. And let me tell you it will be a mighty cheap price to pay if it will tend to avoid such an experience as we have had within the last few weeks in

the State of Missouri, with the attendant damage and loss that have followed from it to all classes of the community. Pass the bill with this section, and you have put the humblest workingman upon an equality in this respect with the richest employer. There is no longer anything to prevent the hearing of any matter in dispute without oppressive expense to one side or the other and upon fair and equal terms. The result will be not the multiplicity of these complaints or suits, but their infrequency. The very power to invoke arbitration will prevent its invocation, as every man who is familiar with human nature knows, because the party in the wrong will sooner do justice than have that power invoked, and because no man who has not a good cause of complaint will be in a hurry to have its weakness and fallacy exposed to the light of an investigating arbitration.

"I am for this bill, then, because it is on the whole a good bill, and especially because it is a temperate bill; because it does not undertake too much; because, while it meets public sentiment, it goes only as far as public sentiment has now gone. It opens the door to peaceful adjustment of difficulties. It turns the minds of the people in the direction of adjudication, and not in the direction of revolution or violence. It works no harm. It accomplishes a good purpose. The committee are entitled to credit for having brought it here in so moderate a form, and I trust we shall pass it as they have presented it to us."

April 3, the bill passed by a vote of 199 to 30. It was brought up for discussion in the Senate, but did not come to a final vote.

On the subject of arbitration, the President sent to Congress the following message :

To the Senate and House of Representatives:

The Constitution imposes upon the President the duty of recommending to the consideration of Congress from time to time such measures as he shall judge necessary and expedient.

I am so deeply impressed with the importance of immediately and thoughtfully meeting the problem which recent events and a present condition have thrust upon us, involving the settlement of disputes arising between our laboring-men and their employers, that I am constrained to recommend to Congress legislation upon this serious and pressing subject.

Under our form of government the value of labor as an element of national prosperity should be distinctly recognized, and the welfare of the laboring-man should be regarded as especially entitled to legislative care. In a country which offers to all its citizens the highest attainment of social and political distinction its workingmen can not justly or safely be considered as irrevocably consigned to the limits of a class and entitled to no attention and allowed no protest against neglect.

The laboring-man, bearing in his hand an indispensable contribution to our growth and progress, may well insist, with manly courage and as a right, upon the same recognition from those who make our laws as is accorded to any other citizen having a valuable interest in charge; and his reasonable demands should be met in such a spirit of appreciation and fairness as to induce a contented and patriotic co-operation in the achievement of a grand national destiny.

While the real interests of labor are not promoted by a resort to threats and violent manifestations, and while those who under the pretext of an advocacy of

the claims of labor wantonly attack the rights of capital, and for selfish purposes or the love of disorder sow seeds of violence and discontent, should neither be encouraged nor conciliated, all legislation on the subject should be calmly and deliberately undertaken, with no purpose of satisfying unreasonable demands or gaining partisan advantage.

The present condition of the relations between labor and capital are far from satisfactory. The discontent of the employed is due in a large degree to the grasping and heedless exactions of employers and the alleged discrimination in favor of capital as an object of governmental attention. It must also be conceded that the laboring-men are not always careful to avoid causeless and unjustifiable disturbance.

Though the importance of a better accord between these interests is apparent, it must be borne in mind that any effort in that direction by the Federal Government must be greatly limited by constitutional restrictions. There are many grievances which legislation by Congress can not redress, and many conditions which can not by such means be reformed.

I am satisfied, however, that something may be done under Federal authority to prevent the disturbances which so often arise from disputes between employers and the employed, and which at times seriously threaten the business interests of the country; and, in my opinion, the proper theory upon which to proceed is that of voluntary arbitration as the means of settling these difficulties.

But I suggest that instead of arbitration chosen in the heat of conflicting claims, and after each dispute shall arise, there be created a commission of labor, consisting of three members, who shall be regular officers of the Government, charged among other duties with the consideration and settlement, when possible, of all controversies between labor and capital.

A commission thus organized would have the advantage of being a stable body, and its members, as they gained experience, would constantly improve in their ability to deal intelligently and usefully with the questions which might be submitted to them. If arbitrators are chosen for temporary service as each case of dispute arises, experience and familiarity with much that is involved in the question will be lacking, extreme partisanship and bias will be the qualifications sought on either side, and frequent complaints of unfairness and partiality will be inevitable. The imposition upon a Federal court of a duty so foreign to the judicial function as the selection of an arbitrator in such cases is at least of doubtful propriety.

The establishment by Federal authority of such a bureau would be a just and sensible recognition of the value of labor, and of its right to be represented in the departments of the Government. So far as its conciliatory offices shall have relation to disturbances which interfere with transit and commerce between the States, its existence would be justified under the provisions of the Constitution which gives to Congress the power "to regulate the commerce with foreign nations and among the several States." And in the frequent disputes between the laboring-men and their employers, of less extent, and the consequences of which are confined within State limits and threaten domestic violence, the interposition of such a commission might be tendered upon the application of the Legislature or Executive of a State, under the constitutional provision which requires the General Government to "protect" each of the States "against domestic violence."

If such a commission were fairly organized the risk of loss of popular support and sympathy resulting from a refusal to submit to so peaceful an instrumentality would constrain both parties to such disputes to invoke its interference and abide by its decisions. There would also be good reason to hope that the very existence of such an agency would invite application to it for advice and counsel, frequently resulting in the avoidance of contention and misunderstanding.

If the usefulness of such a commission is doubted because it might lack power to enforce its decisions, much encouragement is derived from the conceded good that has been accomplished by the railroad commissions which have been organized in many of the States, which, having little more than advisory power, have exerted a most salutary influence in the settlement of disputes between conflicting interests.

In July, 1884, by a law of Congress, a Bureau of Labor was established and placed in charge of a Commissioner of Labor, who is required to collect information upon the subject of labor, its relations to capital, the hours of labor, and the earnings of laboring men and women, and the means of promoting their material, social, intellectual, and moral prosperity.

The commission which I suggest could easily be grafted upon the bureau thus already organized by the addition of two more commissioners, and by supplementing the duties now imposed upon it by such other powers and functions as would permit the commissioners to act as arbitrators when necessary between labor and capital, under such limitations and upon such occasions as should be deemed proper and useful.

Power should also be distinctly conferred upon this bureau to investigate the causes of all disputes as they occur, whether submitted for arbitration or not, so that information may always be at hand to aid legislation on the subject when necessary and desirable.

GROVER CLEVELAND.

EXECUTIVE MANSION, April 22, 1886.

June 9, 1886, the following bill, for incorporating national trades-unions, passed the Senate without a division:

Be it enacted, etc., The term "National Trade-Union," in the meaning of this act, shall signify any association of working-people having two or more branches in the States or Territories of the United States for the purpose of aiding its members to become more skillful and efficient workers; the promotion of the general intelligence; the elevation of their character; the regulation of their wages and their hours and conditions of labor; the protection of their individual rights in the prosecution of their trade or trades; the raising of funds for the benefit of the sick, disabled, or unemployed members, or the families of deceased members; or for such other object or objects for which working-people may lawfully combine, having in view their mutual protection or benefit. . .

SECTION. 3. That national trade-unions shall, upon filing their articles of incorporation in the office of the recorder of the District of Columbia, become a corporation under the technical name by which said national trade-union desires to be known to the trade, and shall have the right to sue and be sued, to implead and be impleaded; to grant and receive in its corporate or technical name, property, real, personal, and mixed, and to use said property, and the proceeds and income thereof, for the objects of said corporation as in its charter defined: *Provided*, That each incorporated union may hold only so much real estate as may be necessary for the purposes of the corporation.

SEC. 4. That an incorporated national trade-union shall have power to make and establish such constitution, rules, and by-laws, as it may deem proper to carry out its lawful objects and the same to alter, add to, or repeal at pleasure.

SEC. 5. That an incorporated national trade-union shall have power to define the duties and powers of all its officers, and prescribe their mode of election and term of office; to establish branches and sub-unions in any Territory of the United States.

SEC. 6. That the headquarters of an incorporated national trade-union shall be located in the District of Columbia.

June 11, this measure passed the House without a division, and on June 29 it was approved by the President.

Land-Grant Forfeitures.—A bill forfeiting public lands granted in 1856 and 1857, in aid of railroads in Alabama, Mississippi, and Louisiana, except so far as covered by the grant in aid of a railroad from Jackson, Miss., to the State line between Mississippi and Alabama, and a railroad from Brandon to the Gulf of Mexico, was passed by both Houses of Congress, and approved July 12, 1886.

Both houses of Congress also passed a bill restoring to the public domain lands granted in the act of July 27, 1866, and subsequent amendments, to aid in building a railroad from Missouri and Arkansas to the Pacific coast, excepting the right of way and the right to take building material from the adjacent public lands.

The House passed a bill for adjusting land-grants to railroads in Kansas, but no vote was taken on the subject in the Senate.

The Senate passed a bill to forfeit part of certain lands granted to railroads in Iowa; but no final action was taken on the subject in the House.

The House passed a bill to declare a forfeiture of the lands granted to the New Orleans, Baton Rouge, and Vicksburg Railroad Company.

June 15, the Senate, by a vote of 42 to 1, passed a bill restoring to the public domain land granted by the act of July 2, 1864, and subsequent acts, to the Northern Pacific Railroad which appertain to and are conterminous with that part of the main line extending from Wallula Junction, in Washington Territory, to Portland, Oregon, except the lands along the branch across the Cascade Mountains, where that road had been constructed at the time of the passage of the act. The House adopted a substitute declaring forfeited all lands granted to the Northern Pacific Railroad by the act of July 2, 1866, except such as were granted for portions of the road completed July 4, 1879, the right to land necessary for operating the road, and land in village, town, and city sites. The vote in favor of the substitute was 174 to 65, and the bill was passed by a vote of 187 to 47. The two houses of Congress failed to come to an agreement on the subject.

The forfeitures of land-grants made in the Forty-eighth Congress amounted to 19,610,880 acres. Those made in the first session of the Forty-ninth Congress amounted to 30,871,360 acres. There is pending between the two houses the Northern Pacific forfeiture, which, under the Senate bill, covers 6,170,640 acres, and, under the House substitute, 36,907,741 acres. The House also passed forfeitures amounting to 1,523,200 acres, and there are pending on its calendars forfeitures amounting to 13,067,214 acres.

The Treasury Surplus.—July 14, 1886, the House took up a joint resolution on this subject, reported by Mr. Morrison, of Illinois, from the Committee on Ways and Means:

Resolved, etc., That whenever the surplus or balance in the Treasury, including amount held for redemption of United States notes, shall exceed the sum of \$100,000, it shall be and is hereby made the duty of the Secretary of the Treasury to apply such excess in sums not less than \$10,000,000 per month, during the existence of any such surplus or excess, to the payment of the interest-bearing indebtedness of the United States, payable at the option of the Government. The surplus or balance herein referred to shall be the available surplus ascertained, according to the form of statement of the United States Treasurer, of the assets and liabilities of the Treasury of the United States, employed on June 30, 1886.

This resolution passed by a vote of 207 to 67. The Senate amended the resolution by adding a proviso that no call shall be made until an amount equal to it is in the Treasury over and above the reserve stated; that the Secretary may keep an additional working balance of \$20,000,000; and that in any emergency, when the public interest, in the opinion of the President, seems to require such a course, he may, by a written order, suspend further calls. Sections were added making trade-dollars receivable at their face value by the Government, and forbidding their reissue in any shape. The amended resolution was passed by the Senate July 30, and August 3 a conference committee agreed on a report which added to the resolution as passed by the House the following proviso:

Provided, That no call shall be made under the provisions of this resolution until a sum equal to the call is in the Treasury over and above the reserve herein mentioned: *And provided further*, That the Secretary of the Treasury, in his discretion, may have in the Treasury over and above the foregoing sums a working balance not exceeding \$20,000,000; and whenever in the case of any extraordinary emergency, not now existing, and when, because thereof, in the opinion of the Secretary of the Treasury, the public interest shall require it, he may, by written order, postpone the further call for the payment of such indebtedness for such period of time as shall be necessary to maintain the public credit unimpaired; and that such postponement and the reasons therefor shall be reported to Congress within ten days after its next meeting, or immediately, if Congress be in session.

National Aid to Common Schools.—Jan. 6, 1886, Mr. Blair, of New Hampshire, reported from the Committee on Education and Labor, to which it had been referred, his bill to aid in the establishment and temporary support of common schools. The measure was substantially the same as that which passed the Senate at the first session of the Forty-ninth Congress, and was given in the "Annual Cyclopædia" for 1884. It provides for the distribution of the sum of \$77,000,000 in eight years among the States and Territories for educational purposes in proportion to the illiteracy in each—\$7,000,000 the first year; \$10,000,000 the second year; \$15,000,000 the third year; \$13,000,000 the fourth year; \$11,000,000 the fifth year; \$9,000,000 the sixth year; \$7,000,000 the seventh year, and \$5,000,000 the eighth year. To share in these appropriations, each State and Territory, through its Legislature, must accept the provisions of the act; and no State

or Territory will be considered eligible that has not provided a free common-school system, full details in regard to which must be filed by the Governor with the Secretary of the Interior. In no case is the amount granted to any State or Territory to be greater for any one year than the sum spent by that State or Territory for the support of its schools during the previous year. Part of the grant may be spent in the education and training of teachers, but none of it in the erection of school-buildings; for that purpose a special fund of \$2,000,000 is provided for the construction of school-houses in poor districts, but in no case is the amount granted for building a school-house to be more than \$150, or half the cost of the structure. The debate on the measure was long, and several elaborate arguments for and against it were presented; but the line of discussion was the same as that followed in the Forty-eighth Congress. March 5, the Senate passed the bill by the following vote:

YEAS—Berry, Blackburn, Blair, Bowen, Call, Colquitt, Conger, Cullom, Dolph, Eustis, Evarts, George, Gibson, Hoar, Jackson, Jones of Arkansas, Kenna, Logan, Mahone, Manderson, Miller of New York, Mitchell of Oregon, Morrill, Palmer, Payne, Pugh, Ransom, Riddleberger, Sawyer, Spooner, Teller, Vance, Van Wyck, Voorhees, Walthall, Wilson of Iowa—36.

NAYS—Cockrell, Coke, Fry, Gray, Hale, Harris, Ingalls, Jones of Nevada, Maxey, Plumb, Wilson of Maryland—11.

ABSENT—Aldrich, Allison, Beek, Brown, Butler, Camden, Cameron, Chace, Dawes, Edmunds, Fair, Gorman, Hampton, Harrison, Hawley, Jones of Florida, McMillan, McPherson, Miller of California, Mitchell of Pennsylvania, Morgan, Pike, Platt, Sabin, Saulsbury, Sewell, Sherman, Stanford, Vest—29.

In the House, March 9, the Senate bill was referred to the Committee on Education; March 29 a measure identical with it was introduced by Mr. Willis, of Kentucky, and referred to the Committee on Labor, the majority of which reported it back, April 27, with a substitute providing that the sales of the public lands for ten years be distributed among the States and Territories for educational purposes, the expenditure not to exceed \$7,500,000 in any single year. No further action was taken.

Inter-State Commerce.—As usual for years much of the attention of Congress was occupied by this subject; and, as usual, no final action was taken. In the Senate, on Feb. 16, 1886, Mr. Cullom, of Illinois, from a Select Committee on Inter-State Commerce, reported a bill which was debated and amended, and passed the Senate May 12, by a vote of 46 yeas to 4 nays. The main features of this bill are, that it forbids unreasonable and unjust charges for transportation and discrimination between persons or localities, enjoins the publication of rates, and provides for a commission with authority to investigate the affairs of all common carriers and command direct compliance with the law, having the right to enforce their orders through petition to the United States courts. May 22, Mr. Reagan, of Texas, reported from the House Committee on Commerce a substitute for the

Senate bill. His measure simply declares what it shall be unlawful for common carriers to do, and certain things which they must do, making them liable to a suit for damages brought by any person injured through their acts or omissions, and declaring the violation of the terms of the law a misdemeanor. July 30, the House by a vote of 134 yeas to 104 nays substituted Mr. Reagan's bill for the Senate bill, and then passed the measure by a vote of 192 to 40. The Senate non-concurred in the House amendment, and July 31 a committee of conference was appointed, but no agreement was reached. The rival measures are substantially the same as those brought forward in the Forty-eighth Congress and given in the "Annual Cyclopaedia" for 1885.

National Bank Associations.—Feb. 11, 1886, Mr. Adams, of Illinois, from the Committee on Banks and Currency, reported the following measure in the House of Representatives:

Be it enacted, etc., That any national banking association may, with the approval of the Comptroller of the Currency, by the vote of shareholders owning two thirds of the stock of such association, increase its capital stock, in accordance with existing laws, to any sum approved by the said Comptroller, notwithstanding the limit fixed in its original articles of association and determined by said Comptroller; and no increase of the capital stock of any national banking association either within or beyond the limit fixed in its original articles of association shall be made except in the manner herein provided.

SECTION 2. That any national banking association may change its name or the place where its operations of discount and deposit are to be carried on, with the approval of the Comptroller of the Currency, by the vote of shareholders owning two thirds of the stock of such association. A duly authenticated notice of the vote and of the new name or location selected shall be sent to the office of the Comptroller of the Currency; but no change of name or location shall be valid until the Comptroller shall have issued his certificate of approval of the same.

SEC. 3. That all debts, liabilities, rights, provisions, and powers of the association under its old name shall devolve upon and inure to the association under its new name.

SEC. 4. That nothing in this act contained shall be so construed as in any manner to release any national banking association under its old name or at its old location from any liability, or affect any action or proceeding in law in which said association may be or become a party or interested.

The measure passed the House by a vote of 130 to 120. The Senate amended it so as to limit the change of location to any place in the same State not more than thirty miles distant, and then passed it without a division. It was approved by the President April 30.

Miscellaneous.—The River and Harbor bill passed by Congress was an unusually heavy one, as it appropriated \$14,473,900.

April 13, 1886, the Senate passed, by a vote of 35 to 10, a resolution declaring that Congress ought not to provide for the appointment of a commission, on which the Governments of the United States and Great Britain should be represented, to consider the fishing rights of the United States and British North America, and settle points in dispute.

April 15, 1886, on motion of Mr. Breckinridge, of Kentucky, the following bill was passed by the House without a division:

Be it enacted, etc., That section 3336 of the Revised Statutes of the United States be and is hereby amended so as to read as follows:

SECTION 3336. Every brewer, on filing notice as aforesaid of his intention to commence or continue business, shall execute a bond to the United States, to be approved by the collector of the district, in a sum equal to three times the amount of the tax which, in the opinion of the collector, said brewer will be liable to pay during any one month, and conditioned that he shall pay, or cause to be paid, as herein provided, the tax required by law on all beer, lager-beer, ale, porter, and other fermented liquors made by or for him, before the same is sold or removed for consumption or sale, except as hereinafter provided; and that he shall keep, or cause to be kept, a book, in the manner and for the purposes hereinafter specified, which shall be open to inspection by the proper officers, as by law required; and that he shall in all respects faithfully comply, without fraud or evasion, with all requirements of law relating to the manufacture and sale of any malt liquors aforesaid; and he shall execute a new bond, whenever required so to do by said collector, in the amount above named and conditioned as above provided, which bond shall be in lieu of any former bond or bonds of such brewer in respect to all liabilities accruing after its approval by said collector.

In the Senate the measure was amended by providing that the bond referred to in the last clause be executed "once in four years," and whenever required, etc., and was then passed, April 26, by a vote of 27 to 19. The House concurred in the Senate amendment April 27, and the President approved the bill May 5.

June 1, the Senate passed, without a division, a bill providing that no alien and no foreign corporation shall hereafter hold land in any Territory of the United States or the District of Columbia, except such as may be acquired by devise or inheritance, or in good faith in the ordinary course of justice in the collection of debts, and also except in cases where existing bodies grant to the subjects of a foreign power the right to hold lands in the United States. The bill also provides that no corporation, 20 per cent. of whose stock is owned by foreigners, shall hold lands, and that no corporation except those for the construction and operation of railways, canals, or turnpikes, shall hold more than 5,000 acres of land acquired hereafter in any of the Territories; and no railway, canal, or turnpike shall hold more land than is required for its business, except in cases where land is granted by act of Congress. In the House, July 31, the Committee on Public Lands reported a substitute, limiting the foreign ownership of stock in corporations owning land in the Territories to 10 per cent., and forbidding foreign acquisition of title by any means, but excepting from the scope of the act corporations for the construction and operation of railroads. This measure passed the House by a vote of 209 to 6. The measure was made the subject of conference between the houses, and no final decision was reached.

In regard to a fortification bill, the two houses disagreed, and nothing was done in

regard to the construction or armament of sea-coast defenses.

To strengthen the navy, Congress passed a bill authorizing the President to have constructed two sea-going double-armored vessels, of about 6,000 tons displacement, with speed of 16 knots an hour, to cost, exclusive of armament, not more than \$2,500,000, both to have a complete torpedo outfit. Also, one protected double-bottomed cruiser, of not less than 3,500 nor more than 5,000 tons displacement, to cost, including engines and machinery, and excluding armament, not exceeding \$1,500,000; also, a first-class torpedo-boat, at a cost of \$100,000; also, to complete the double-turreted monitors "Puritan," "Amphitrite," "Monadnock," and "Terror," at a total cost not exceeding \$3,178,046. And the sum of \$1,000,000 was appropriated for the armament of the new vessels, the "Miantonomoh" and the unfinished monitors.

In the Sundry Civil Appropriation bill Congress provided for the issue of silver certificates of one, two, and five dollar denominations, in lieu of certificates of larger denominations.

Both houses passed bills for the repeal of the pre-emption, timber-culture, and desert-land laws, but, as no agreement could be reached in conference, the result remained undecided.

A bill was introduced in the Senate by Mr. Beck, of Kentucky, forbidding any member of Congress to accept employment as an attorney or payment for services of any kind from any railroad that obtained its charter grants of land, or pecuniary aid from the United States, and making the violation of the law a misdemeanor. The bill passed the Senate June 10, 1886, by a vote of 37 to 11, but was reconsidered June 23 by a vote of 31 to 21, and referred to the Judiciary Committee, and Mr. Hoar reported from that body a substitute extending the application of the bill so as to make it absurd. Its consideration was postponed.

April 8, 1886, the House, by a vote of 163 to 126, rejected a bill for the free coinage of silver.

No vote was reached on the bill for counting the electoral vote.

Jan. 8, 1886, a bill supplementary to the act for the suppression of bigamy passed the Senate by a vote of 38 to 7; but in the House no action was taken beyond reporting a substitute.

The following measures not noticed in detail were passed:

To provide that manufactured tobacco, snuff, and cigars may be removed for export without payment of tax, and repealing the law providing for inspectors of tobacco.

To provide that homestead settlers within the railway limits restricted to less than 160 acres of land shall be entitled to have their additional entries patented without any further cost or further proof of settlement and cultivation.

To remove the charge of desertion against soldiers who re-enlisted without having first

received a discharge from the regiments in which they had previously served.

Authorizing the construction of a building for the accommodation of the Congressional Library.

Providing that after July 1, 1886, no fees shall be charged to American vessels for measurement of tonnage, issuing of licences, granting of certificates of registry, etc., and amending the laws relative to the shipping and discharging of crews, the liability of owners of vessels, the licensing of vessels, etc.

To provide that surveyed lands granted to railroads conterminous with completed portions of such roads, and in organized counties, shall not be exempt from local taxation on account of the lien of the United States upon them for the costs of surveying, selecting, or conveying them; also making provision for selling such lands on the refusal or neglect of the companies to pay costs of survey.

To give the receiver of a national bank the power to buy in any property of the bank sold under foreclosure when necessary to protect his trust.

To reduce the fees on domestic money orders for sums not exceeding \$5, from eight cents to five cents.

To allow steam-towing vessels to carry, in addition to their crews, as many persons as the supervising inspector may authorize.

And a clause was inserted in the Agricultural Appropriation bill directing the Commissioner of Agriculture to purchase and destroy diseased animals whenever, in his judgment, it is essential to prevent the spread of pleuro-pneumonia from one State into another.

Constitutional Amendments.—More than the usual number of amendments to the Constitution of the United States were proposed in the Forty-ninth Congress:

Dec. 8, 1885, by Mr. Plumb, of Kansas, an amendment prohibiting forever the manufacture, importation, or sale of all distilled and fermented intoxicating liquors as a beverage.

Dec. 9, 1885, by Mr. Blair, of New Hampshire, an amendment declaring that the right of citizens to vote shall not be denied or abridged on account of sex.

Dec. 9, 1885, by Mr. Blair, of New Hampshire, an amendment forbidding the manufacture, sale, importation, or exportation of distilled alcoholic intoxicating liquors, except for medicinal, mechanical, chemical, and scientific purposes after the year 1900.

Dec. 15, 1885, by Mr. Jackson, of Tennessee, an amendment, making the presidential term six years, and declaring the President ineligible to re-election, and the Vice-President ineligible in cases where he has succeeded to the presidency.

Dec. 19, 1885, by Mr. Browne, of Indiana, an amendment providing for the election of President and Vice-President, and the counting of the electoral votes, based on the principle of allowing the people in each State to vote di-

rectly for President and Vice-President, and then apportioning the electoral vote of the State among the candidates according to the popular vote of each, multiplying the number of votes cast for any candidate by the number of electoral votes to which the State may be entitled, and dividing the product by the whole popular vote, and allowing each candidate the benefit of any fraction expressed within three decimal places.

Dec. 21, 1885, by Mr. Springer, of Illinois, an amendment providing that the presidential term shall be six years; that the President shall be ineligible to re-election; that the people of each State shall vote directly for candidates for President and Vice-President; and that the share of each in the electoral vote of a State shall be determined by dividing the popular vote cast in a State by the number of electoral votes to which it is entitled, to find a presidential ratio, and then dividing the vote cast for each candidate by this ratio to obtain the number of electoral votes to which he is entitled, the odd electoral votes to go to the candidate having the largest fraction. Also an amendment providing for holding congressional elections in November, and having the first session of the new Congress begin in the January following. Also an amendment prohibiting local, private, and special legislation by Congress.

Dec. 21, 1885, by Mr. Townshend, of Illinois, an amendment providing that the Senators of each State shall be elected by the people of the State.

Dec. 21, 1885, by Mr. Thomas, of Illinois, an amendment prohibiting bigamy or polygamy.

Dec. 21, 1885, by Mr. Payson, of Illinois, an amendment allowing the President to veto or approve separate items in appropriation bills.

Dec. 21, 1885, by Mr. Matson, of Indiana, an amendment enabling Congress to provide for the election of postmasters by the people.

Dec. 21, 1885, by Mr. Weaver, of Iowa, an amendment classifying the Senate so that one third of the Senators shall be chosen every two years directly by the people.

Dec. 21, 1885, by Mr. Blanchard, of Louisiana, an amendment forbidding the President, by and with the consent of the Senate, to make reciprocity treaties affecting the revenues until Congress, by a bill originating in the House of Representatives, agree to the proposed changes.

Jan. 5, 1886, by Mr. McComas, of Maryland, an amendment providing that the clause forbidding States to pass any law impairing the obligation of a contract shall not be construed as prohibiting States from taxing the capital stock or property of any corporation created by a State.

Jan. 5, 1886, by Mr. Collins, of Massachusetts, an amendment adding "nativity" to the causes on account of which the right of citizens of the United States to vote shall not be abridged by the action of any State.

Jan. 5, 1886, by Mr. Davis, of Massachusetts, an amendment granting Congress power to limit, by legislation, the hours of employment.

Jan. 5, 1886, by Mr. McAdoo, of New Jersey, an amendment appointing elections for presidential electors in each State to be held on the third Tuesday of October, and forbidding the holding of any State, municipal, or local election on that day.

Jan. 5, 1886, by Mr. Beach, of New York, an amendment prohibiting Congress from granting to any private corporation or individual any exclusive privilege, immunity, or franchise whatsoever. Also an amendment making the statute of limitations in each State apply to claims of citizens of that State against the United States. Also an amendment giving the President thirty days after the adjournment of Congress in which to act on bills passed by that body, and providing for the veto of separate items in appropriation bills. Also an amendment giving Congress power to establish uniform marriage and divorce laws throughout the United States. Also an amendment forbidding the loan or gift of the credit, money, or property of the United States to any association, corporation, or private undertaking.

Jan. 6, 1886, by Mr. Bayne, of Pennsylvania, an amendment providing for the election of postmasters, revenue-collectors, marshals, and district attorneys by the people of the States in which their duties are to be performed.

Jan. 6, 1886, by Mr. Randall, of Pennsylvania, an amendment giving the President power to veto separate items in appropriation bills.

Jan. 6, 1886, by Mr. Dibble, of South Carolina, an amendment providing for the election of a second Vice-President of the United States.

Jan. 6, 1886, by Mr. Reagan, of Texas, an amendment prescribing the method of levying direct taxes.

Jan. 6, 1886, by Mr. Throckmorton, of Texas, an amendment providing for the veto or approval of separate items in the River and Harbor bill.

Jan. 7, 1886, by Mr. Grout, of Vermont, an amendment providing that, in the case of post-offices, appointments to which are intrusted to the head of the Post-Office Department, no person shall be eligible unless recommended by a majority of the voters who are patrons of the office in question, acting in open meeting called to obtain the expression of their opinion.

Jan. 11, 1886, by Mr. Payne, of New York, an amendment providing for the veto or approval of separate items in appropriation bills.

Jan. 18, 1886, by Mr. Lovering, of Massachusetts, an amendment forbidding any State to let out by contract the labor of prisoners.

Jan. 18, 1886, by Mr. Crain, of Texas, amendments providing for the election of President, first Vice-President, second Vice-President, and third Vice-President, and to modify the Constitution to suit the new system.

Jan. 26, 1886, by Mr. Townshend, of Illinois, an amendment providing for the election of President and Vice-President by the direct vote of the people.

Feb. 8, 1886, by Mr. Little, of Ohio, an amendment providing for the election of President and Vice-President without the machinery of an electoral college, the electoral votes of each State being cast for the candidates receiving from the people of the State the greatest number of votes.

Feb. 8, 1886, by Mr. Springer, of Illinois, an amendment forbidding special legislation by Congress in cases where laws relating to the subject-matter are in force.

March 1, 1886, by Mr. Hill, of Ohio, an amendment providing for the election of the Senate every sixth year by the direct vote of the people of the several States.

March 8, 1886, by Mr. Seymour, of Connecticut, an amendment authorizing Congress to provide for bringing suits for claims against the United States.

March 15, 1886, by Mr. Ingalls, of Kansas, an amendment providing that the term of the present President and the Fiftieth Congress be prolonged until April 30, 1889, and that from that time on each presidential term and each new congressional term shall begin on the 30th of April instead of the 4th of March.

May 24, 1886, by Mr. Tucker, of Virginia, from the Committee on the Judiciary, an amendment as a substitute for several proposed on the subject of polygamy.

None of the amendments got further than to be reported from a committee.

Summary.—There were introduced into the Senate during the session 2,891 bills and 83 joint resolutions, and into the House of Representatives 10,017 bills and 216 joint resolutions. Congress passed 1,095 bills, of which the President approved 814 and 157 became laws without signature, while 115 were vetoed and 9 failed for want of action at the close of the session. One bill was passed over the President's veto.

The session closed Aug. 5, 1886.

CONNECTICUT. State Government.—The following were the State officers during the year: Governor, Henry B. Harrison, Republican; Lieutenant-Governor, Lorin A. Cooke; Secretary of State, Charles A. Russell; Treasurer, Valentine B. Chamberlain; Comptroller, Luzzerne J. Munson. Supreme Court: Chief Justice, John D. Park; Associate Justices, Elisha Carpenter, Dwight W. Pardee, Dwight Loomis, and Miles T. Granger.

Legislative Session.—The Legislature met on Jan. 6 and adjourned on April 14. The following are among the acts of the session:

That probate courts shall have power to appoint conservators for inebriates and dipsomaniacs.

That minors under sixteen shall be excluded from pool and billiard rooms.

That no attorney shall give bonds in any criminal action in which he is interested as attorney.

That town clerks shall be registrars of births, mar-

riages, and deaths in their towns, unless otherwise specially provided by law.

That towns may vote to furnish school-books to children free of charge.

Increasing the penalties for burglary, especially if the burglar has weapons in his possession.

That the Board of Pardons shall have the powers of a Superior Court to compel the attendance of witnesses.

That no person shall be taken out of the State on a requisition until after he is informed of the crime charged, and has opportunity to apply for a writ of *habeas corpus*.

That persons arrested for offenses on cars or steamers may be prosecuted in the town where the arrest is made.

Punishing trustees of public institutions for receiving bribes or commissions on contracts for supplies.

That each savings-bank shall annually report to the Comptroller a list of unclaimed deposits of twenty years' standing, with the name, amount, and last-known address of each depositor.

That "druggists' licenses," issued to druggists, shall contain this clause: "This license does not authorize the sale of spirituous and intoxicating liquors to be drunk on the premises."

That nominations of Common Pleas and District Court judges shall be referred to the Judiciary Committee of the Legislature before the nominations are voted upon.

Authorizing the State Board of Health to investigate the pollution of streams.

That no person shall be disqualified as a witness because of his disbelief in the existence of a Supreme Being.

Restoring the old system of selecting jurors.

That towns may establish Kindergarten-schools for children between three and seven years of age.

Legalizing barbed-wire fences and fixing their height, etc.

That corporations may vote to share their profits with their employees.

To punish fraud in the sale of oleomargarine.

That police officers may make searches and seizures for illegal liquor-selling.

Appropriating \$100,000 for armories in Hartford, Norwalk, and New Britain.

For the protection of trees on highways from being cut or injured by employés of telegraph, telephone, and electric-light companies.

For the study in the public schools of the effect of alcoholic liquors and tobacco and other narcotics on the human system.

Authorizing the Labor Commissioner to employ special agents at an expense not exceeding \$1,000.

Prohibiting the discounting of wages by employers.

Prohibiting the withholding of wages because of any agreement requiring notice before leaving the employment.

That no marriage license be issued until the registrar or town clerk receives the sworn statement of the person applying for the same.

That the Governor shall annually each spring designate "Arbor-day," to be observed in the schools, and for economic tree-planting.

Imposing a State tax of two mills.

Appointing the Governor, Secretary, Treasurer, and Comptroller a commission to examine ballot-boxes invented to prevent frauds in elections and report to the next General Assembly.

Appropriating \$190,000 for improvements at the State-Prison.

Finances.—The finances of the State are in a highly satisfactory condition. On the 1st day of July the funded debt was \$4,721,200. Of this debt, bonds bearing interest at the rate of 5 per cent., and amounting to \$1,030,000, are due May 1, 1897, but are redeemable at the

pleasure of the State after the 1st of next May. The Governor recommends that these bonds be paid as soon as they become redeemable, and that funds for this purpose be provided by the issue of new bonds bearing interest at the rate of 3 per cent., and payable thirty years from date. The large balance of cash in the treasury at the beginning of the last fiscal year was owing to the then recent sale of new bonds which had been issued for the purpose of paying that portion of the State debt which was then maturing. At the close of the last fiscal year the cash on hand was \$230,442.48, and during that year the ordinary receipts of the treasury exceeded its disbursements for ordinary expenses by more than \$300,000.

For the year ending June 30 there came into the treasury, through the ordinary sources of revenue, the sum of \$1,813,701.78. During the same year there was paid out of the treasury for ordinary expenses (including the interest on the State debt) the sum of \$1,511,697.52.

Military Affairs.—The National Guard is composed of 2,244 officers and men.

The last Legislature authorized the building of new armories at New Britain and Norwalk, and the purchase of the one occupied at Hartford, with the condition that the total expenditure should not exceed the sum of \$100,000. Contracts effecting these objects have been made, and involve a total expenditure of about \$92,000.

Banks.—There are eighty-five savings-banks in the State, an increase of one from last year, and the general condition of these banks is better than it has ever been before. On Oct. 1, the total amount of deposits in all the savings-banks of the State was \$97,424,820.85, an increase during the year of nearly \$5,000,000. At the same date the total number of depositors was 266,888, an increase in the year of 10,791. More than two fifths of the population of the State are depositors in these banks.

Insurance.—Within the past year, the Charter-Oak Life-Insurance Company has been placed in the hands of receivers. In the general condition of the other insurance companies no marked change was shown.

On Jan. 1, 1886, there were in the State ten stock fire-insurance companies, with paid-up capital amounting to nearly \$11,000,000, with gross assets of more than \$25,000, and with a surplus above all liabilities of nearly \$7,000,000. The number of mutual fire-insurance companies was sixteen, with assets of \$1,270,000, and with a surplus above all liabilities of \$974,000. The number of life-insurance companies was nine, with gross assets of more than \$110,000,000, and with liabilities (except capital) of \$98,000,000.

Railroads.—The Commissioners report that there is continued improvement in the general condition of all railroads in the State. The freight and passenger traffic, the gross earnings, and the net earnings have all largely increased. The number of passengers carried

was 19,011,381, and of these only five were fatally injured. The accidents at highway crossings were fewer than usual, and resulted in nine deaths, as compared with fourteen the year before. The number of regular Sunday trains has increased, but the number of Sunday excursions has diminished.

Charitable Institutions.—On June 30 the number of patients in the Connecticut Hospital for the Insane was 1,146, an increase of 127. The number of new patients admitted during the year was 361, and the number of removals by death or discharged was 234. The wing completing the new South Hospital building has been finished at a cost less than the sum appropriated.

The revenue derived from the board of patients is enough for all the ordinary expenses of the hospital.

For the purpose of providing accommodations for 150 more of the sick and indigent soldiers of the late war, the last Legislature appropriated \$15,000 for the enlargement of Fitch's Home at Darien. This enlargement is now completed, and gives room for more than 200 additional inmates.

Reformatory Institutions.—On July 1, the number of boys in the State Reform School was 447, an increase of thirty-four as compared with the previous year. The number of boys received during the year was 238, and the number discharged was 204. The three cottages that have been built accommodate 150 boys, or about one third of the whole number, and the superiority of the system is evident.

The State-Prison directors report that the work for the enlargement and improvement of the prison is going on, and, when it is completed, the State will have substantially a new prison with all the modern improvements, at a cost far less than that of any similar institution in the country. The highest number of convicts confined at any one time during the last year was 310, whereas the new prison will have cells for 450. The ordinary expenses of the prison exceeded its income by \$2,401.32.

Bureau of Labor Statistics.—The law fixing the limit of child-labor at thirteen years is meeting with general approval. Employers, as a rule, favor the law and gladly obey its requirements, but many of the parents, impelled by poverty or motives of gain, are disposed to evade it. The Commissioner recommends the enactment of a statute exempting from attachment the wages of mechanics and laborers. Such a statute would take away that basis of credit which is now furnished by the factorizing laws, would compel the storekeeper to refuse to trust except in cases of undoubted personal character and responsibility, and would tend to bring about weekly payments in factories.

Education.—At the close of the last fiscal year, the principal of the school fund amounted to \$2,022,204.27, a loss from the previous year of \$7,919.47. A part of this loss came from the foreclosure of certain old mortgages,

and the rest was the result of the readjustment of the stock of the City Bank of Hartford. The total amount of money raised in the State during the last year for the support of the common schools was \$1,663,019.17. Of this sum about \$759,000 came from town taxation; about \$448,000 from district taxation; about 114,000 from the earnings of the school fund; nearly \$48,000 from the town deposit fund and local funds; about \$228,000 were appropriated by the State; and the balance, of about \$66,000, came from voluntary contributions and other sources.

The number of children between the ages of four and sixteen was 152,166. The number registered in the schools was 125,539, but of these many attended school only a few days, and many more only the sixty days required by the law. The number of children that did not attend school at all was 20,388.

Rhode Island Boundary.—The commissioners appointed to settle the boundary question between Connecticut and Rhode Island, report that their work has been completed, and that the boundary-line, as agreed upon, is satisfactory to all, and makes a just and impartial division of waters that have hitherto been undivided.

Political.—The Democratic State Convention met in New Haven on September 28, and nominated the following ticket: For Governor, Edward S. Cleveland; Lieutenant-Governor, Edward E. Bradley; Secretary of State, Bryan F. Mahan; State Treasurer, William W. Skiddie; Comptroller, Malcolm R. Griswold. The platform contains the following:

In legislative enactments the Democratic party pays due regard to the fullest liberty of the individual consistent with law and order. We recognize the fact that no law to prevent the abuse in the use of alcoholic liquors can be enforced against public sentiment; and we adhere to the views heretofore expressed by the Democratic party that a well-regulated license law, thoroughly executed, will best promote the cause of temperance and good order in society. But a license law, under the control of an exclusively partisan board of county commissioners, who act for their party rather than the welfare of society, will fail of its primary object.

A decrease, in the past four years, of nearly \$600,-000 of the surplus in the State treasury, as shown by the Treasurer's official reports, and an increase of 60 per cent. in the State tax the present year, placing additional taxes upon the people to the amount of \$260,000, call for a return to the Democratic economy of 1873, when, under Governor Ingersoll and a Democratic Legislature, precisely one half of the amount of the present tax was laid. And that low tax was continued, under Democratic rule, for four years, notwithstanding extraordinary expenses were required for building the State Capitol. We demand that the principles of economy, essential at all times, shall be strictly adhered to while the State is in debt over \$4,000,000.

We believe in the largest political liberty, compatible with good order, and approve of laws that shall absolutely protect voters from intimidation and corruption by the privilege of a secret ballot.

We believe that the prosperity of the country depends upon the unity and harmony of the business and industrial interests with the wage-workers, and to this end the Democratic party denounces all that tends to degrade the laborer. It is pledged to all

measures that are calculated to elevate, educate, and improve his condition, and we hereby indorse the position taken by its representatives in the last Legislature, who upheld the ten-hour law, weekly payments, the restriction of child-labor, and an absolutely secret ballot. To the passage of these measures the Democratic party stands committed. And we believe in giving to the true friends of labor the enforcement of all measures designed to benefit the wage-earners.

The Republican State Convention met in Hartford three weeks previously, and made the following nominations: For Governor, Phineas C. Lounsbury; Lieutenant-Governor, James L. Howard; Secretary of State, L. M. Hubbard; Treasurer, Alexander Warner; Comptroller, Thomas Clark. The platform favors a protective tariff, protests against the removal from office of worthy and disabled Union soldiers to make places for partisan civilians and ex-Confederates, and demands that the surplus in the Treasury be steadily applied to the reduction of the national debt. The following are among the other planks:

The Republican party has always been the firm friend of labor against all who would oppress or enslave it, and every measure in State or nation which will tend to protect the workingman from dangerous foreign competition or from home degradation, or improve or dignify his condition, will meet with our unqualified approval. It declares its hostility to the importation of the cheap labor of foreign countries, under contract; to the employment of convict-labor in such manner as to come into injurious competition with free labor; to the granting of any more land to railroad or other corporations, and to the selling of the Government lands to land syndicates or to aliens. We favor the incorporation of organizations of workingmen for the improvement of their members and the protection of their interests, and we pledge ourselves to such legislation as will tend to restore that harmony which should always exist between the employer and the employed. In furtherance of these declarations, and in order that they may be carried into execution (on a proper basis), we believe that the fullest intelligence is requisite for the preservation of a just equilibrium between the great industries of the country. To this end we favor the establishment of a national department of industries and labor, to gather such necessary information as will give a correct starting-point for future legislation. We denounce the attempt of the Democratic party at the last session of Congress to change the tariff laws, as an attack upon American labor, and calculated to reduce the wages of the laboring-man and degrade his condition.

The traffic in intoxicating liquors is justly chargeable with being a great cause of poverty, ignorance, and crime. Our existing local-option laws are in accord with the State's ancient theories of local government, and the Republican party is ready, as it always has been, for the enactment of such laws, tending to eradicate the evils of intemperance, as may be demanded by public sentiment.

We demand an honest and thorough enforcement of the civil-service law, and, as far as practicable, we favor the extension of its principles to municipal and State administrations.

The sacredness of the ballot is the safeguard of the republic, and we renew our declarations against fraud, violence, and intimidation wherever and however practiced, whereby the right of any citizen, white or black, in any part of this country, to cast one ballot and have that ballot fairly counted and returned, is denied, abridged, or imperiled.

We believe the Territory of Dakota, by past precedents and by the letter and spirit of the Constitu-

tion, is manifestly entitled to a place among the sisterhood of States, and we condemn the Democracy in Congress for refusing its admission to the Union.

S. B. Forbes was the Prohibition candidate and H. C. Baker the Labor candidate for Governor. The following was the result of the vote for Governor on the 2d of November: Democratic, 58,818; Republican, 56,920; Prohibition, 4,699; Labor, 2,792; scattering, 15; total, 123,244. As a majority is necessary to elect, there was no choice of State officers by the people, and the Republican candidates were elected in 1887 by the Legislature, which is Republican, having 14 Republicans and 10 Democrats in the Senate, and in the House 138 Republicans, 109 Democrats, and 2 Labor men. Democrats were elected to Congress from the first, second, and fourth districts, and a Republican from the third district.

COREA, a kingdom of Eastern Asia, called by the natives Chō-sen ("Morning Calm"), bounded by the possessions of China and Russia and by the Sea of Japan.

Political Divisions.—Corea is divided into eight *dō* or provinces (see map in "Annual Cyclopædia" for 1885), which, in the main, have natural boundaries of mountain or river, and are the basins of the streams that drain them. They are subdivided into three hundred and sixty prefectures, which include the vast number of outlying islands but not the thirty districts, relics of mediæval feudalism, which are independent of the provincial jurisdictions within which they lie. The natives of Ham-kiung province are the best people of the peninsula morally, intellectually, and physically; those of Kiung-sang, standing next, have dark skins and luxuriant beards, "resembling," as a native says, "the Arabians," who once traded with them. The people of Ping-an rank third. Those of Whang-hai most nearly resemble the Chinese, and are ranked, in the view of most Coreans, the poorest and lowest of all. The Kang-wen people, slight in physique, are strong mentally. In the home province, or Kiung-kai, there is an unusual proportion of the official class, as well as of traders and adventurers.

Government.—The King, Ni-Hiong, is thirty-five years old, and has two sons. The Ni dynasty was founded in 1392. The Queen is of the Ming family, and a woman of great ability. Below the King, with the triple premiership and Royal Council, rank the governors of the provinces. The senior premier nominates to the sovereign three men for each *dō* or circuit. From these the King chooses one. The governor holds office for thirty months, but may be renominated. He has the power of life and death, and freely uses it. His retinue consists of 1,000 persons, that of the King being 3,000. Over each prefecture is a magistrate nominated by one of the royal ministers.

Cities and Ports.—Séoul (capital), or Han-yang (the royal residence on the Han river), is a city situated about twenty miles from the mouth of the Han or chief river of the peninsula (lati-

tude $37^{\circ} 32'$, longitude $124^{\circ} 30'$). The nearest gateway in the city wall is about two miles from the river-bank, the suburbs being densely populated. Politically, Séoul is independent of the governor of Kiung-kai. The climate is good, equable and dry in winter, the thermometer being near zero for two months or more. There is plenty of ice, but little snow. May and June are the hottest months, with the rainy season just before July. The streets, as laid out by the founder of the present dynasty in 1392, were from twenty to two hundred feet wide, with well-built drains of masonry at the sides. The walls, not now including the entire city, go over mountains and valleys, making a circumvallation of ten miles. The wide spaces of the thoroughfares have been greatly encroached upon for building and trade, and the drains so neglected as to be choked, except during the flushing of the rainy season. The population of Séoul is estimated at 200,000, and including the suburbs at 400,000. There are six cities officially computed to contain 20,000 houses each, the reckoning of six persons to a house giving a population of 120,000. Ten cities have each 10,000 houses. Three ports—In-chiun (Chimulpo), near Séoul, Pu-san, in Kiung-san, and Wen-san, in Ham-kiung—are now open to foreign trade. Chimulpo is on a small promontory on the left bank of the Han river, near its entrance into the sea, six miles from In-chiun, the prefectoral town. Opened in 1883, it had in June, 1886, a foreign population of 800 persons. Of these 24 were Europeans, 130 Chinese, and the rest Japanese. Of the 150 houses there were 3 consulates, 3 hotels, 2 banks (Japanese), and a telegraph station. A broad, or sea-front street, and jetty have been constructed.

Foreign Policy.—Corea has treaty relations with most of the European countries, but foreign trade is yet in its infancy. Situated between two powerful and rival nations—China and Japan—her foreign policy consists of measures calculated to please both these nations. The real cause of its intrigues, banishments, and recall of prominent men, and even the riots and assassinations which have marked the national history since King Hiong ascended the throne in 1864, has been the struggle of the pro-Chinese or the pro-Japanese politicians to hold the reins of power and to mold the national policy. After varying fortunes, the party favoring Chinese methods and ideas has since 1884 held power, though a group of moderate Liberals, had previously possession of the royal influence long enough to make the first treaty with a Western nation, the United States. Owing to the British occupation of Port Hamilton, Russia menaces the occupation of Port Lazareff, near Wen-san. A telegraph from Séoul to New-chwang, and thence to Pekin, has been constructed under Chinese auspices.

Coreans in the United States.—No Coreans were known to travel outside of Japan and China until the dispatch of the royal embassy in 1883

to the United States. The refugee Liberals, after the failure of their *coup d'état* in 1884, fled to Japan, as the Government of Tokio looked with disfavor upon the literary and political activity of Kim-Ok-Kiun, the ex-premier, and banished him in July, 1886, to the Bonin islands. There are now in the United States nine Coreans, refugees or students, under Government patronage. All are preparing for college, four for the Christian ministry.

Americans in Corea.—In Séoul, the *chargé d'affaires* of the American legation is William W. Rockhill, with Song Ik Yung as interpreter. In the employ of the royal Government are H. N. Allen, M.D., director of the Royal Hospital and Medical School, with J. W. Heron, M. D., and Rev. H. T. Underwood as assistants; Mr. Merrill is in charge of the customs service, and Mr. H. N. Denny is adviser to the State Foreign Office. The first passport ever granted to a foreigner to travel through the country was issued in November, 1883, to Mr. Pierre L. Jouey, *attaché* of the Smithsonian Institution, who, in fifteen days, traversed the peninsula from Séoul to Pu-san. Dr. Allen and Mr. Merrill made the land-journey in the autumn of 1886 from Séoul to Wen-san. The number of Americans—missionaries, merchants, and travelers—in Corea in 1886 was about fifty. At Pu-san there are 2,000 Japanese, and in all the ports about 2,800, who have banks, newspapers, mail and telegraph facilities, and steamers.

Medical Science.—In the first annual report of the Government Hospital, which was established on the suggestion of the secretary of the American legation, Lieut. Foulk, and opened April 10, 1885, Dr. Allen describes the diseases most common, which are malaria, four-day ague, syphilis, dyspepsia, skin-disorders, dropsy, scrofula, leprosy; with beri-beri, melanosis, distoma, and filaria, which are less frequent. The natives do not rally as well after surgical operations as do the Chinese, owing to their stronger drinks and use of meat. Acupuncture, cautery, and the use of the Chinese system of medicine, in which innumerable drugs and compounds in enormous draughts are depended on by the natives. Baths are not popular. Food is highly seasoned with pepper. Among the 10,460 cases and 394 dispensary operations, there were of fevers, 1,147; disorders of digestion, 2,032; circulation, 114; respiration, 476; nervous, 833; lymphatic, 214; genito-urinary and syphilis, 1,902; eye, 629; ear, 318; tumors, 145; bones, joints, and tendons, 105; wounds and injuries, 140; skin-diseases, 845; diseases of women, 845. Dr. Allen has also treated the King; and Miss Annie Ellers, an American lady, the Queen. Native physicians and a corps of sixteen picked students are being trained in Western medical science. The Medical School was opened March 19, 1886.

Cholera.—Early in the summer of 1886, cholera, introduced from Japan, became epidemic

in Séoul, and, during the summer, carried off 1,000 persons a day. The filthy water in the choked drains, the uncleanly habits of the people, their excess in eating food and in passions, and their habitual use of green food, provided the congenial soil for a pestilence that ceased not until the advent of frost. This visitation of cholera is but a repetition of the scourge introduced from Japan.

Education.—Hitherto only a knowledge of the Chinese classics, and the ability to read, write, and reckon on the abacus, constituted the education of a Corean gentleman. The chief spur to knowledge was the hope of government employ, appointment to office being made by competitive examination. The badge of a graduate or scholar was a certain peculiarity in the dress of the head and body. Schools were private, or under temple patronage. Acting upon a proposition emanating from the American legation, the Foreign Office made application to the State Department in Washington for three teachers to establish a school on Western principles in Séoul. Three young men, D. A. Bunker, G. W. Gilmore, and H. B. Hulbert, graduates respectively of Oberlin, Princeton, and Dartmouth Colleges, were selected by the Commissioner of Education. Arriving in Séoul July 5, they were given charge of thirty-five picked young men of noble family, and on the 16th of September, 1886, the nucleus of the Royal College of Corea, and of a national system of education was begun. The students are supported by the Government, and live in barracks adjoining the school, which is modeled on the American plan. Other foreigners, mostly missionaries, have also opened schools, in which foreign languages are taught. The course of study in the Royal College embraces six years. The probability of high rank and office is a stimulus of great power to those matriculated. In October a union Christian church was organized for foreigners resident in Séoul.

Finances.—The unfortunate political situation of Corea between two great rival nations and her frequent wars with either country, have frequently placed her in a position of financial embarrassment. Her long seclusion and her political system have tended to decentralization and weakness. Both income and expenditure are fixed within narrow limits. After seasons of calamity five methods of obtaining funds have been in vogue: (1) Reduction of the army; (2) reduction of salaries of officers; (3) the utilization of the reserve funds, consisting of 3,050,000 bushels of rice and 100,000 pounds troy of silver; (4) the coinage of copper tokens; (5) the sale of official rank. After the great Japanese invasion of 1592-'99, the official salaries were reduced 66 per cent., and the reserve fund was exhausted, so that the other active means for replenishing the treasury had to be put into effect. The French and American hostilities in 1866 and 1871, and the disturbances consequent upon foreign inter-

course, have, during the present King's reign, almost reduced the treasury to emptiness. The sale of official positions and new levies of taxes have failed to bring relief, and a reform in administration is imperative. A national debt has been created, and \$1,000,000 is now owing to Japanese, Chinese, and German bankers. At present the customs service is one of heavy expense; the profits, when in hand, are, by treaty made with the Japanese, to be devoted to the erection of lighthouses at important points.

Gold-Mining.—Gold in quartz is found in many places, but in Ham-kiung it is alluvial. In the former case the rock is crushed with hammers, and the dust washed. In the placers, a shallow wooden bowl holding two shovelfuls of earth is set under a running stream, and kept in agitation, only the coarser gold being saved. Native methods are exceedingly wasteful, no machinery being used; 25,000 men were engaged in the washings during 1886. The number of permits issued by the Government varies according to the harvests. When crops are good, the number is curtailed. The bullion and dust are exported to Séoul, China, Siberia, and Japan. Nine tenths of the gold coins struck at the Osaka mint are of Corean metal. In 1883 the export of gold from Wen-san, noted at the custom-house (reckoned at \$20 per fael or 14 ounce) was \$28,920; in 1884, \$110,265; in 1885, \$375,148; in 1886, to June, \$155,110; and, in July, one Japanese steamer took away \$42,000. Mr. George C. Foulk, in his report to the State Department, dated March 20, 1886, that the miners pay as royalty to the Government and magistrates 50,400 pounds of gold annually; that from 1881 to 1884, 6,540 pounds of gold, valued at \$1,885,033, and 18,680 pounds of silver, worth \$387,780, were exported by sea; that 82 mines of gold, 4 of silver, 17 of copper, 40 of iron, 9 of coal, 7 of lead, and 13 of precious stones, are known and worked. Mr. Ito states that the exports of crude gold, from 1881 to 1884, amounted to \$3,785,033,191, and of silver \$387,769,444, an average of about \$1,200,000 of metal per annum. In the overland trade with Russia and China gold is exported, and a heavy outlay of silver—1,000 pounds for each ambassador—is required for the embassy sent to Pekin annually.

Trade.—At Chimalpo, in 1885, trade aggregated \$1,159,322, an increase of 98 per cent. over the \$585,960 of 1884. Of exports, the staple is hide and of imports cotton, the total figures of export for 1884 being \$60,951, and for 1885, \$132,583, and of imports \$546,258 and \$180,442. At Gensan, the trade in 1885 was \$564,052, as against \$306,132 in 1884. Of the \$53,835 worth of exports, cow-hides figure at \$50,000. The difficulty of transport (\$3.50 on a ton of goods from Séoul to Chimalpo, a distance of twenty-five miles), the lack of good roads, the meanness of the small copper currency, and the general apathy of the people, make the development of trade, while hopeful, slow and uncertain.

COSTA RICA, one of the five Central American republics. The area is estimated at 19,980 square miles; and on Dec. 31, 1885, the population was 193,144. The frontier disputes between Costa Rica and Colombia on the one hand, and between the former and Nicaragua on the other, are to be settled by international arbitration.

Government.—The President of the Republic is Don Bernardo Soto, whose Cabinet was formed of the following ministers: Foreign Affairs, Don Ascension Esquivel; Interior and Public Works, Don Leon Fernández; Finance, Don Mauro Fernández; War, Don Santiago de la Guardia. The United States Minister to the five Central American republics, resident at Guatemala, is Hon. H. C. Hall. The American Consul at San José is J. Schroeder. The Minister Resident of Costa Rica in the United States is Señor M. M. Peralta, and the Costa Rican Consul-General at New York is Señor José María Muñoz. On May 5 the Costa Rican Congress appointed Don Apolinario de Jesús Soto, Don Ascension Esquivel, and Don Carlos Duran, Designados or Vice-Presidents.

Finance.—The report of the Minister of Finance of Feb. 11, 1886, shows that on that date the national indebtedness stood as follows: Consolidated foreign debt, £2,000,000; home debt, \$873,826. During the fiscal year ended March 3, 1886, the income was \$3,200,065, being \$263,308 greater than it had been estimated in the budget. The chief sources of income were: Puntarenas custom-house, \$381,484; Limon custom-house, \$535,780; liquor monopoly, \$747,961; tobacco monopoly, \$466,974; railroad, \$112,760; post-office, \$15,918; telegraph, \$14,220. The outlay was \$2,088,944, being \$114,963 greater than had been estimated. The budget estimate for 1886-'87 is \$2,707,614 income, and outlays to an equal amount. The conversion of £4,810,812 debt of Costa Rica was negotiated by the agent of the Government in June, 1885, ratified by the Costa Rican Executive on Oct. 16, 1885, and accepted by the council of foreign bondholders in December of the same year. The arrangement arrived at was this: In return for £100 of the 6 per cent. loan of 1871 the republic issued in bonds £50 at 5 per cent. interest, series A, the first coupon payable July 1, 1886, and added thereto £22,101 in shares of the Costa Rica Railway Company. For every £100 of the 7 per cent. loan of 1872 there were returned £50 new bonds at 4 per cent., series B, the first coupon payable July 1, 1886, and there were added £22,101 in shares of the Costa Rica Railway Company. Series A bears 5 per cent. from the time of issue; series B, 4 per cent. during the first two years, and thenceforward also 5 per cent. The conversion was conditional, the Government binding itself to make arrangements for the carrying out of the concessions of April 21, 1884, relating to the railroad and its equipments, within three years. The Union Bank

of Costa Rica is to collect till the year 1888 the customs revenue pledged as security for the new bonds; all money to be paid to Messrs. C de Murrieta & Co., London, to be distributed by the River Plate Trust, Loan, and Agency Company.

Army.—The actual strength of the army in 1886, including officers of all ranks, was 1,000, with a militia reserve of 27,000.

Post-Office.—In 1885 there passed through the post-offices of the republic 1,828,392 items of mail matter, as follows: 408,466 letters; 136,360 Government dispatches; 9,072 postal-cards; 1,172,664 newspapers; 488 sample packages; 1,202 business notifications; 2,947 certificates; 653 requests of notices; 140 reports; 5,815 registered letters; and 191 postal orders to the amount of \$14,972; together, 1,737,998 items.

Telegraphs.—There were in operation in 1886 three sections of telegraph: one, 135 miles in length, connecting El Puriscal, Santo Domingo, San Ramon, Grecia, and El Navanjo; another, 101 miles, connecting Esparta with Liberia; and a third, 48 miles, connecting Liberia with the frontier of Nicaragua. There were twenty-two offices, and they forwarded, between March 1, 1885, and Feb. 28, 1886, 22,607 Government messages into the interior, and 38,039 private messages. There were also 2,480 private messages sent to Nicaragua. There were received, during the same twelvemonth, 2,500 telegrams from Central America, and 359 from abroad.

In January, 1886, twelve telephone-offices were opened at the capital, and the system was being rapidly extended.

Railroads.—At the close of 1885 there were in operation the following lines: Alajuela to San José, 22 kilometres; Puntarenas to Esparta, 22; San José to Cartago, 22; and Limon to Rio Sucio, 113, together, 179 miles. The rolling stock consists of 6 locomotives and 37 cars. The number of passengers conveyed was 158,338, and the freight carried to 7,072 tons. The gross earnings were \$23,045, and the expenses \$25,273, resulting in a loss for the year of \$2,228. On Aug. 20 work was begun on the Reventazon or Atlantic Railroad. In June a company was formed in London for the purpose of buying the Costa Rica Railroad between the port of Limon and the village of Carrillo, and between Cartago and Alajuela, together with the wharf at Limon. The company furthermore intends building a branch line from some point on the Limon-Carrillo line near the river Reventazon, to connect with the Cartago-Alajuela Railway.

Early in 1886 the contract made between the city authorities of the capital and Silas Wright Hastings, for the construction of one or more tramways, received the Government's approval.

Steamship Line.—In August the Government contracted with Charles F. Irigoyen and Joseph F. March for the establishment of a line of

steamers between San Francisco and Panama, to touch at intermediate ports. The line will be known as the "Hispano-Centro-Americana," and its steamers will carry the Spanish flag. The vessels are to touch at Puntarenas and whatever other ports may be opened on the Pacific side of Costa Rica, at least once a week, and carry all mail-matter.

The Costa Rican Government requires that the steamship company shall care for and instruct eight young men of that country on each of its seven steamers, who shall be appointed by a commission after competitive examination. These will be placed on board the steamers as apprentices, and, after a certain number of years' service and competitive examination, will be given diplomas as sea-captains and engineers. The Government agrees to grant a rebate of 5 per cent. on the duties of merchandise shipped on board the vessels of the company, to give the company eighteen acres of land for the construction of warehouses, and a subsidy of \$10,000 per annum for the first five years of the contract and \$8,000 per annum for the remaining five years. The operation of the line was to begin not later than Oct. 15, 1886.

Textile Industry.—The Government furthermore conceded to Messrs. P. W. and E. G. Chamberlain the privilege for two years of introducing into the country duty free, machinery and accessories necessary for the preparation of textile fiber grown in the republic; and for a term of fifteen years, free of duty and wharfage, of the chemical substances and coal they may need for the purpose.

The Government granted, early in January, to Federico Velarde, the privilege of importing, duty free, woolen yarns, twist, and thrown silk, for the manufacture of fabrics, whether those yarns be bleached or dyed.

Minerals.—Rock-crystal and placer-gold are found in the Cuesta Blanca, on the Pacaca road; onyx in Pacaca; amethysts in the Colorado salines and the Barbulad mountain, where handsome jasper is also met with. Opals are found in Candelaria; labradorite in the mountains north of Raiceiro; kaolin abounds in San Ramon; lime for cement in Candelaria; phosphate of lime in San Antonio; and valuable iron-ore on the coast at Sardinal.

Commerce.—The following is a tabular statement of the foreign trade in 1885:

IMPORTATION.

COUNTRIES.	Value.
From England.....	\$1,657,940
From France.....	443,302
From Germany.....	605,016
From the United States.....	856,645
From other countries.....	68,028
Total.....	\$3,660,931

EXPORTATION.

To England	\$1,362,190
To France.....	225,212
To Germany.....	375,192
To the United States.....	1,058,519
To other countries.....	175,395
Total.....	\$3,296,508

CRAB-FARMING.

The export of coffee from Costa Rica in 1885 was:

COUNTRIES.	Quintals.	Value.
To England.....	103,722	\$1,296,588
To Germany.....	27,664	345,804
To France.....	25,153	314,488
To Spain.....	25	317
To Belgium.....	139	1,741
To New York.....	17,036	212,962
To New Orleans.....	6,296	78,628
To San Francisco.....	17,604	220,050
To Colombia.....	1,288	16,112
Total.....	198,932	\$2,486,648

The American trade for the fiscal year, 1886, was as follows:

Import from Costa Rica into the United States.....	\$898,045
Domestic export from the United States to Costa Rica.....	548,215

Education.—There were in Costa Rica on Jan. 1, 1886, 115 primary public schools for boys, and 101 for girls; together, 215 schools. The number of children of school age was 32,306, of whom 17,026 were boys and 15,280 girls. Assuming the population then to have been 193,144, the proportion was one school child to six inhabitants. The number of children attending school was 13,413, of whom 7,355 were boys and 6,058 girls. Of private primary schools there were 86, attended by 1,042 male pupils and 819 female pupils; together, 1,861 scholars. The school-tax produced, in the seven provinces together, \$24,489.

CRAB-FARMING.—The increasing demand for edible crabs in the great seaboard markets has led the fishermen of the neighboring coasts, especially that of New Jersey, to adopt a system of crab-culture, or rather of crab-preservation, which renders it possible to market the catch in far better condition than formerly. This is known as "crab-farming," but it hardly merits the name, as it has not yet advanced beyond the protection of the crabs from their natural enemies. Those that are engaged in the business pay little attention to breeding. They know that during September the season properly ends, because the female crab carries about with her a spongy substance, consisting of thousands of small eggs. These are hatched in due time, and, except after very severe winters, the supply of young crabs is abundant, but they are not large enough for market before the second year.

In May the mature crabs emerge from their winter-quarters in the deep mud, and appear in shallow water, where they are netted in large numbers and sorted out, according to condition, into circular stockades or pens made of stakes driven close together in the shallows. Crabs are in their best edible condition when they outgrow and shed their hard shells and emerge very fat, and with shells so thin that they are properly called "soft-shelled crabs," though they are not, as is supposed by many, a distinct species. When captured in this state the crab is sent to market at once, as his shell hardens in a few hours if suffered to remain in

the water. A majority of the catch is certain to be in an unmarketable state. They are either hard or semi-hard shelled, and in either case are placed in the stockade. In local phrase, a crab that shows signs of shedding his shell within a few days is called a "comer." When the time of change is obviously close at hand, he is a "buster," and after the old shell has been cast off he is a "shedder," and the sooner he is sent to market the better price will he command. If he is overlooked for a day he becomes a "buckler"—that is, his shell has hardened so that a slight pressure upon it causes it to bend or "buckle," like the bottom of a tin pan. If he reaches this stage he must needs be kept until again ready to become a "shedder," usually two or three weeks. During their period of confinement in the stockade the crabs must be judiciously tended. If they are fed too liberally, they fatten prematurely and die. If they are not fed enough, they eat one another, especially if one of their number chances to become a "shedder" while the watchman is away. Crabs thrive upon almost any kind of waste food. When free, they are general scavengers, and are not fastidious when confined. Stockades are of various sizes, according to the resources of the owners. One man can supply and watch a pen a dozen or fifteen feet in diameter, but larger dealers employ several men and boats, and keep several twenty-foot stockades in active operation.

No successful attempt has as yet been made to breed crabs for market, and, notwithstanding the enormous consumption, the supply keeps well up with the demand. During the season the price per dozen in the New York market ranges from a few cents to two dollars—seventy-five cents being a fair average for the whole season. Of late years, when the market is overstocked, the crabs are frozen by artificial means, and sent to the large inland cities of the South and West. Fair Haven, on Shrewsbury river, is the headquarters of the New Jersey crabbers, and 250 dozen crabs is an average daily shipment from this port alone. The crabs are packed in shallow boxes on beds of fresh sea-weed, and are thus kept alive and in good condition for twenty-four to forty-eight hours.

CUBA, an island in the West Indies, belonging to Spain. (For statistics of area, population, etc., see "Annual Cyclopaedia" for 1883.)

Army.—The Commander-in-Chief and Captain-General of the island is Don Emilio Calleja & Isasi. The strength of the Spanish forces in Cuba, in 1886, was 19,858.

Finance.—Cuba's indebtedness in May, 1886, was, as shown in the following table:

Paper money in circulation issued during the insurrection	\$26,788,506
Hypothesis of 1880	62,250,000
Custom-house bonds of 1878	5,537,500
Three-per cent. bonds with one-per-cent. sinking-fund	20,215,278
Annuities	11,750,468
Total	\$136,341,752

The floating debt was \$30,860,000, making a total of \$167,201,752.

In May there was placed on the European market a 6-per-cent. Cuban loan to the amount of 170,000,000 pesetas or francs, at 87, less 3-per-cent. commission, the Spanish treasury guaranteeing them the bonds, of which there are 340,000 of 500 pesetas each to run eighty-five years. There were subscriptions to the amount of 617,108 bonds. In other words, for every 100 bonds subscribed for, only 55·05 could be awarded.

Post-Office.—During the fiscal year 1884-'85, the Cuban post-offices received from abroad 562 mails, the letters weighing in the aggregate 7,478,187 grammes, and the newspapers 10,027,846. It forwarded abroad 714 mails, with the respective weight of letters and newspapers of 7,465,750 and 19,176,400 grammes.

Railroads.—The Bay of Havana Railway earned in 1885, £53,117 net, of which £36,526 was paid to first-mortgage bondholders in the shape of interest, and set aside toward the sinking-fund the net earnings showing an excess over those of 1884 of 11½ per cent. The line is in good condition and prosperous, in consequence of the large sugar-crops. The company made a new 7-per-cent. loan in April, 1886, to the amount of £345,000, payable, in 1917, at 98.

The Western Railroad of Cuba, which traverses the famous Vuelta Abajo tobacco-region, was expected to be in operation all the way to Pinar del Rio toward the close of 1886.

Farming Interests.—Early in 1886 there were in operation in Cuba 1,200 sugar-plantations, 5,000 tobacco-plantations, 160 coffee-plantations, 25 cocoa-plantations, 5,000 stock-farms, 17,000 truck and other farms, and 95,000 stores and industrial establishments.

Sugar-Crops.—The Cuban sugar-crop that came to market in 1886 amounted to 750,000 tons, and, judging from the appearance of the canes in the autumn of 1886, it was hoped that, in 1887, 1,100,000 tons additional would be produced.

Mining.—In 1885 there were in existence in the island the following mines:

Concessions.	MINERAL.	Area in hectares.
91	Iron-ore.....	5,350
41	Copper.....	427
5	Gold.....	84
3	Manganese.....	122
2	Quicksilver.....	24
15	Asphaltum.....	891
3	Petroleum.....	465
2	Naphtha	140

Of these concessions the following were in productive operation: One asphaltum in the Havana district, which produced 1,799 tons, employing 10 workmen; three asphaltum in the Pinar del Rio district, producing 1,250 tons, employing 22 workmen and two four-horse-power engines; two asphaltum in the Matanzas district, producing 300 tons, employing 12 men; one petroleum well in the Matanzas district, producing 283 hectolitres

with 6 men and one four-horse-power engine; one naphtha well in the Santa Clara district, producing 34 hectolitres; three ironore beds in Santiago de Cuba, producing 23,877 tons, employing 270 hands and engines of eighty-six horse-power; three copper-mines in Santa Clara and Santiago de Cuba, yielding 67 tons of cement copper and employing 27 hands. The import of mining machinery and supplies, which as such are free of import duty, amounted in value to \$170,639. The largest amount of machinery imported was by the Juragua Iron Company, for its new mines and railroad near Santiago. The stockholders of this company are the Bethlehem Iron Company, the Pennsylvania Steel Company, and the Cambria Iron Company. The iron-ores average about as follow: Metallic iron, 66 per cent.; sulphur, 0·07 per cent.; phosphorus, 0·041 per cent.; silica, 2·03 per cent. The highest phosphorus determinations only show 0·083 per cent. This company has built a railroad 27 kilometres long, entirely of American material. The large iron pier at the terminus of the road is also the result of American enterprise. The ore is transported to Philadelphia, the quantity reaching 15,000 tons a month. The company employed 600 men in 1886.

Bat-Guano.—Large quantities of bat-guano have been discovered on the south coast of the island. This guano is deposited in caves, one of which was estimated to contain from 25,000 to 30,000 tons. The facilities for working these deposits are said to be excellent.

American Enterprise.—The American consul reported to the State Department in August from Havana: "American capitalists are beginning to increase and work up the mahogany and cedar exportation from here. One company in particular tends fair soon to control a most formidable tract of land in the northern part of this province. All our fellow-countrymen laud the manner in which the Spanish Government here facilitates their movements by a readiness to help and aid them in every way. This only holds as regards the executive branch of the Government, and does not refer to the custom-house regulations, which tend in every way to discourage importation."

Emancipation.—The number of slaves declared free, in accordance with the abolition law, between May 5, 1885, and May 7, 1886, was 25,523. The number of slaves who, at the latter date, had obtained their freedom during the six years elapsed since the promulgation of the law, was 120,253. The remaining 25,381 were freed by vote of the Cortes in October, 1886.

Commerce.—According to statistics published by the Minister for the Colonies, the total foreign-trade movement in Cuba during the fiscal year 1884-'85 was \$88,224,263, there having been imported \$31,587,859 and exported \$56,636,404. This movement includes \$5,776,849 imported from Spain, and \$4,704,388 exported to that country, the entire trade

with the mother-country consequently not exceeding \$10,481,237. The American trade with Cuba is shown in the following table:

FISCAL YEAR—	Import from Cuba into the United States.	Domestic export from the United States to Cuba.	Total trade.
1886.....	\$51,110,780	\$10,020,879	\$61,131,659
1885.....	42,306,093	8,719,195	51,025,288
1884.....	57,181,497	10,562,880	67,744,377
1883.....	63,544,584	14,567,918	80,112,452

The Cuban custom-houses collected during the fiscal year 1885-'86 \$14,808,192, an increase of \$1,539,838 compared with the amount of revenue they yielded the previous fiscal year.

There entered Cuban ports during the fiscal year 1885-'86, altogether, 3,189 vessels, against 3,040 the previous fiscal year. The aggregate tonnage of vessels arrived was 2,437,155 in 1885-'86, against 2,315,109 in 1884-'85.

The American Consul-General at Havana is Ramon O. Williams.

Reciprocity Treaty.—The text of the commercial convention between Great Britain and Spain, signed at Madrid on April 26, subsequently ratified by the British Parliament and the Spanish Cortes, and going into operation in August, provides that Spain grants to the United Kingdom and its colonies and foreign possessions the "most-favored-nation" treatment in all that concerns commerce, navigation, and consular rights and privileges in Spain, the Spanish colonies, and foreign possessions, coextensive with that accorded to France and Germany. Article III provides that the convention when approved shall remain in force until the 30th of June, 1892. The right was reserved to Canada to say within one year whether she will accept the treaty or refuse to abide by its provisions. Meantime Spain and her colonies are open to Canada on the same terms as the most favored nations.

Discriminating Duties.—Under date of June 22, the Spanish Minister for the Colonies, Señor Gamazo, upon representations made by Minister Curry, addressed to the Captain-General of Cuba a dispatch in which he stated the American complaint of infringement of the subsisting treaty agreement in the following terms:

The minister plenipotentiary of the United States of America has complained to the Government of his Majesty respecting the manner in which the agreement of Feb. 13, 1884, is enforced in your island, alleging that Article I gives the right to the North American flag to be placed on an equality with the Spanish flag in the ports of said island in respect to the collection of duties of all kinds, and consequently he complains that a differential duty is maintained in your island respecting foreign goods transhipped in American ports, as also that navigation dues continue to be exacted from American vessels different from those fixed for Spanish vessels; and in view of his arguments and of other antecedents which aid in a proper interpretation of said agreement, his Majesty the King, and in his name her Majesty the Queen Regent, with the object of demonstrating the good intentions of Spain toward the United States and the good faith with which it seeks to enforce its treaties, has been pleased to decree, ratifying the royal order of May 7, 1886,

that the American flag in the direct trade with the islands of Cuba and Porto Rico shall be put on a complete equality with the Spanish flag in the transportation of products proceeding from the United States. Respecting navigation dues, although the equal treatment of American with Spanish ships is not provided for in the agreement, adhering to this spirit of deference to the said nation, it is the will of his Majesty that, as soon as it is shown by the representative of the United States in your island that his Government has granted this treatment to Spanish vessels, your customs officers shall apply it to American vessels, in just reciprocity and in conformity with the royal decree of June 4, 1878. By royal order I communicate this to you for your information and its proper observance.

Three months after the foregoing order had been issued it was repudiated by royal decree, the Foreign Office at Madrid ignoring its interpretation as proclaimed. Spain wishes to have the privilege of carrying cargoes from Cuba to the United States, previously not conceded, being subject to 10 per cent. additional duty, to correspond with the 10 per cent. extra duties levied in Cuba on importations under the American flag. The different duties were enumerated under three heads for the Spanish flag, and a fourth for the American or foreign flag, the fourth column being the 10 per cent. extra in the agreement between the two governments. As stipulated, the agreement might apply only to products of the United States, coming from there. Products of the United States have been admitted on the third column; but other merchandise, such as fish or other commodities from the British provinces, has had to pay according to the fourth column, while such importations from New York under the Spanish flag have paid duties under the third column. As for the tonnage dues, steamers arrived in Cuba from Spain were loading sugars for New York, and paying no tonnage dues, while American vessels were paying in Cuba 62½ cents a ton inward and 62½ cents a ton outward.

The President of the United States, in consideration of the lack of reciprocity on the part of Spain, under date of Oct. 13, 1886, issued a proclamation containing the ensuing passages:

And whereas proof is given to me that such complete suppression of the differential flag duty in respect of vessels of the United States and their cargoes entering the ports of Cuba and Porto Rico has not in fact been secured, but that, notwithstanding the said agreement dated at Madrid, February 13, 1884, and in contravention thereof as well as of the provisions of the said section 4228 of the Revised Statutes, higher and discriminating duties continue to be imposed and levied in said ports upon certain produce, manufactures, or merchandise imported into said ports from the United States or from any foreign country in vessels of the United States than is imposed and levied on the like produce, manufactures, or merchandise carried to said ports in Spanish vessels:

Now, therefore, I, GROVER CLEVELAND, President of the United States of America, in execution of the aforesaid section, etc., do hereby revoke the suspension of the discriminating customs imposed and levied in the ports of the United States on the products of and articles proceeding under the Spanish flag from Cuba and Porto Rico, which set forth and contained

in the aforesaid proclamation, dated the 13th day of February, 1884, this revocation of said proclamation to take effect on and after the 25th day of October instant.

Immigration.—A decree of the Minister for the Colonies, appearing in the Madrid official "Gaceta" of December 7, regulated and determined the assistance the Government will give to societies that promote free immigration into Cuba. The Government will pay the passage-money for Spanish immigrants and their families from Spain and the Balearic Isles to Cuba. It will pay the cost of passage of free foreign immigrants from Europe and Africa to Cuba only, and will grant \$40 to each free immigrant from Asia and Oceania. Special favor will be shown by the authorities in Cuba to white immigrants and Spanish-born immigrants from Spain or Spanish-American countries. After one year's residence, white immigrants will enjoy the same privileges as "time-expired" soldiers settling in Cuba.

Coal and Steel Rail Imports.—In 1886 the arrivals of coal in Cuba have been almost entirely on contract, and the prices from \$4.50 to \$6 a ton for American, and from 25 to 29 shillings a ton for English. The latter was rapidly losing favor in the Havana market, being only used where good coal is really necessary. Of the common sorts, the American is cheaper, can be obtained at shorter notice, and the gas-works company claim for it the advantage of containing more gas than the English, good Welsh and Staffordshire being the only British coals that find a ready sale there. Iron rails are mostly imported from Belgium, and machinery from the United States. The importations of Bessemer steel rails have amounted to about 5,000 tons, at prices varying from \$42 to \$27 cost, freight and insurance. The greater part was imported from Belgium, Germany, and France, the English manufacturers not having been represented until the beginning of 1886. About 1,500 tons of light portable rails were also imported from the United States.

The Cigar-Makers' Strike.—In October a cigar-makers' strike assumed gigantic proportions at Havana, throwing 20,000 operatives out of employment. The strike, originating in a demand for increased wages from the makers of Partido tobacco cigars, extended to those working Vuelta Abajo leaf, and to the adjoining cities of Santiago de las Vegas, Bejucal, San Antonio, Guines, and other towns. The factories remained closed until Nov. 18, when the men went to work again on an agreement to form committees to arbitrate their claims. The committee fixed the claims in some factories, but other claims were pressed, which the committee refused to arbitrate, as they had risen since Nov. 18. The matter was held in abeyance, and the men went out again on the 20th. On Nov. 26 they all returned to work again.

CYCLORAMA. This word is derived from the Greek words *κύκλος*, *a circle*, and *θάμα*, *a scene*; its natural English meaning is *a circular scene*. It is of comparatively recent origin, and is found only in the latest editions of dictionaries, although the system of pictorial representation to which it is now applied, including the laws of cycloramic perspective, have been understood for two or three centuries. It is only within a generation that cycloramas have been painted and constructed with a satisfactory degree of mechanical perfection, and only about ten years since the aid of photography and of greatly improved machinery and accessories has produced the wonderfully realistic effects attained in the great paintings of American battle-scenes recently exhibited in the principal cities of the United States. In preparing a painting of this character the ordinary rules of perspective are useless, save in a fragmentary way. The observer, instead of including the entire picture in the natural angle of vision, is surrounded by the painted canvas

was centered on the platform and arranged so that it could sweep the entire horizon, and ten pictures were taken, each including two of the twenty-four range-stakes. In the finished photographs the stakes served to register the series, and when attached in a continuous strip the ten pictures, of course, gave a continuous panorama of the field. Pasting together the ends of this strip, the panorama became a cyclorama, and afforded an accurate guide for enlargement on the grand scale contemplated for the painting. Of course, each separate photograph had its own system of linear perspective, and artistic ingenuity had to reconcile the apparent distortions of the camera—an easy task, since the vanishing-point for any object could be ascertained by projecting the radius of the great circle to the general horizon-line, which is, of course, common to the whole painting.

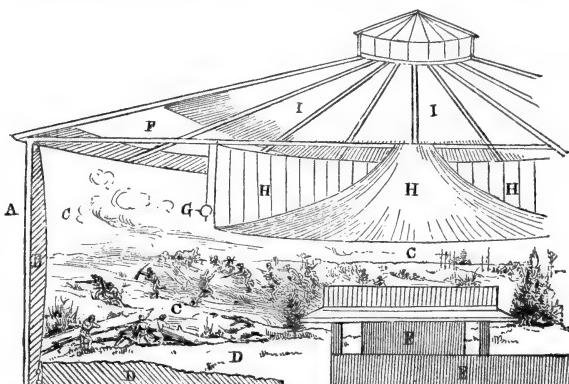
A special building is required for such a work as this. Those that have been built in this country are mostly of corrugated iron, circular in general shape, and large enough to

leave space for passage behind the canvas after it is in place. In the center is a circular platform a little lower than the horizon-line of the painting. This is covered with a canopy, cutting the line of vision just below the top of the painting. The light falls from above this canopy through a sky-light by day, and from a circle of electric lights by night. From this platform the progress of the painting is superintended.

The canvas is fifty feet wide, and when ready for hanging is wound on a large roller arranged so that it can revolve on a vertical axis. A circular tramway is laid on the floor of the building close to the outer wall, and a frame mounted on wheels runs on this,

carrying the canvas-roll. A wooden cornice-frame runs around the entire building at the eaves, and to it the upper edge of the canvas is nailed. The frame is rolled along the circular track as fast as necessary, delivering the canvas as it moves. When the canvas is in position and the ends sewed together, its lower edge is attached to a huge ring made of gas-pipe, corresponding in size with the cornice-frame. The ring and the twenty-five-pound weights hung all round at three-foot intervals are sustained by the canvas, which is thus strained heavily downward, and can yet expand or contract without wrinkling. Instead, however, of forming a perfect cylinder in shape when placed in position and weighted, the canvas bulges inward a foot or more midway between the upper and lower edges, and the horizon-line, apparently the most distant part of the painting, is really nearer to the observer than the sky and the middle distance.

After the painting is finished, and the me-



SECTION OF A CYCLORAMA.

just as he is surrounded by the landscape when out-of doors. This necessitates different points of sight, or vanishing-points as they are technically called. (See article on DRAWING, in Appleton's "American Cyclopædia.") Strictly speaking, these points are infinite in number in a cyclorama, but practically they are reduced to as small a number as is consistent with picturesque representation. This is known as cycloramic perspective. In the great historical painting of the battle of Gettysburg, the artist, Paul Philippoteaux, who has also superintended the execution of most of the other great paintings of this class, personally inspected the battle-field and selected the most available central position from an artistic point of view. Here he erected a scaffolding with a platform at a suitable height, and drew a circle around it about eighty feet in diameter. At intervals of about twenty-four feet stakes were driven in this circle dividing the whole circumference into ten equal parts. A photographic camera

chanical appliances are removed, the foreground is arranged with something of the landscape-gardener's art. Real grass, shrubs, and the like, are disposed around the central platform, and so skillfully blended with the painted middle distance that it is almost impossible with the unaided eye to determine where one ends and the other begins. The atmospheric effect is enhanced by the manner in which visitors are introduced to the cyclorama. The entrance is through a long, narrow, dimly lighted passage-way, ending in a winding stair; and when the visitor emerges upon the central platform, his eye, having adjusted itself to a dim light, is

prepared to accept at more than its true value the brightness of the rotunda. He has, moreover, in a measure lost his sense of orientation on the winding stair, and the artificial prospect is presented with much the same effect as if it were seen from a hill-top under the open sky.

The illustration represents part of a cross-section of a cyclorama. A is the outer wall; B, space between wall and canvas; C C C, canvas; D D, foreground; E E, covered entrance passage-way, winding stair, and spectators' platform; F, sky-light; G, electric lamp; H, canopy; I, roof.

D

DAKOTA. Territorial Government.—The following were the Territorial officers during the year: Governor, Gilbert A. Pierce; Secretary, M. L. McCormack; Treasurer, J. W. Raymond; Auditor, E. W. Caldwell; Attorney-General, George Rice; Superintendent of Public Instruction, A. Sheridan Jones; Railroad Commissioners, William M. Evans, Alexander Griggs, and W. H. McVay; Commissioner of Immigration, Lauren Dunlap. Supreme Court: Chief-Justice, Bartlett Tripp; Associate Justices, C. S. Palmer, W. H. Francis, W. B. McConnell, William E. Church, and L. K. Church.

General Condition.—The Governor, in his report to the Secretary of the Interior, dated Oct. 1, says:

Dakota suffered in common with the rest of the country from business prostration and from the drought, which injured the smaller grains. The drought was not general, but local, some parts of the Territory showing large yields, while in others the failure was almost complete. Indeed, it is not unusual to find farms in the same county showing strikingly dissimilar results, one with its grain a practical failure, the other showing a full average production. I think it safe to say that in wheat and oats the shortage in the crops over last year, will be at least one third; flax, rye, and barley also suffer. The yield of potatoes and other roots will probably be nearly up to the average.

Farmers have given much attention to cattle-raising of late years, and have that product to fall back upon when grain is in loss. This industry has developed very rapidly in all parts of the Territory. In the older counties of South Dakota the farmers have long been accustomed to keeping a limited number of cows and beef-cattle. But it was supposed the large cattle-ranches must be confined to the western part of the Territory, where the abundant grasses and limited snow-fall enabled cattle to graze during the winter months. Late experiments have demonstrated, however, that cattle-raising can be profitably pursued even in the extreme northern part of the Territory, and the result has been the establishment of large cattle-ranches in various sections, while there are few farmers in any part of the Territory who have not herds.

The total of lands taken up for settlement during the year ending June 30, 1886, is estimated by the Commissioner of Immigration at

4,000,000 acres. He estimates the increase of population for the year at 85,000, making the total population of the Territory 500,000. While the Western and Middle States continue to furnish a good majority of the new-comers to Dakota, a larger proportion than usual comes this year from Eastern and New England States and Canada. The foreign immigration other than from Canada for the year has been comparatively small, the Scandinavian countries furnishing the greater number.

Financial.—The bonded debt of the Territory remains the same as a year ago, namely, \$568,200. The assessment of 1886 shows an increase over 1885 of about \$24,000,000, making the total assessment for this year in round numbers \$130,000,000. The tax levied for Territorial purposes has been decreased from year to year, until for 1886 it is but 2 1/4 mills. The total county indebtedness of the Territory, bonded and floating, is a little over \$3,000,000.

Valuation.—The following statement gives the assessment for two years, Emmons and Marshall Counties wanting for 1886:

ITEMS.	1885.	1886.
Total assessment	\$106,007,307 00	\$132,063,905 00
Acres of land.....	16,050,041	17,703,881
Value of same.....	\$56,644,269 00	\$65,511,892 00
Average per acre	\$3 53	\$3 67
Value of town lots.....	\$18,919,327 00	\$21,298,565 00
Property in merchandise	\$4,364,537 00	\$5,982,601 00
Capital in manufactures	\$171,956 00	\$388,644 00
Number of horses	168,847	205,059
Value of same.....	\$7,849,357 00	\$10,615,162 00
Average per head.....	\$46 57	\$51 02
Number mules and asses	15,702	16,738
Value of same.....	\$891,781 00	\$971,517 00
Average per head.....	\$56 47	\$58 40
Number of cattle	397,872	475,842
Value of same.....	\$5,602,882 00	\$7,429,607 00
Average per head.....	\$14 69	\$15 63
Number of sheep	136,961	132,581
Value of same.....	\$156,632 00	\$165,375 00
Average per head.....	\$1 15	\$1 27
Number of swine.....	158,633	173,128
Value of same.....	\$321,073 00	\$387,007 00
Average per head.....	\$2 09	\$2 24
Value of vehicles	\$2,822,739 00	\$2,555,012 00
Moneys and credits	\$2,392,380 00	\$2,707,546 00
Household furniture	\$445,683 00	\$461,808 00
Stocks and shares.....	\$655,218 00	\$1,279,543 00
Other property.....	\$5,274,622 00	\$9,091,511 00

DAKOTA.

Education.—The following summary of statistics of the public schools is for the year beginning July 1, 1884, and ending June 30, 1885:

ITEMS.	North Dakota.	South Dakota.	Dakota.
Number of persons, June 1, 1885, over 7 and under 20 years	26,760	60,803	87,563
Pupils enrolled in public schools	19,725	49,350	69,075
Percentage of attendance of those enrolled	63	63	63
Number of teachers employed, total	1,146	2,999	4,145
Average pay of teachers per month, males	\$44.43	\$32.03	\$38.23
Average pay of teachers per month, females	\$34.09	\$28.49	\$31.29
Number of schools, total	895	2,384	3,279
School-houses built during the year	217	698	895

FINANCES.	North Dakota.	South Dakota.	Dakota.
Total expenditures	\$540,430.29	\$1,273,752.18	\$1,814,212.40
Balance cash on hand	182,246.96	145,297.43	327,5.439

There are two universities, one at Vermilion and one at Grand Forks. There is also one agricultural college, at Brookings, and two normal schools, one at Madison and one at Spearfish. In addition to these the School of Mines at Rapid City has been established and will soon be in operation.

The University of Dakota is at Vermilion, and has a faculty of seven members. There are 166 pupils enrolled in all departments, and a steady increase is reported. The University of North Dakota was established by legislative enactment in 1883, and was opened for the reception of students in September, 1884. The faculty is composed of six members. It is at Grand Forks, in the Red river valley. There are about fifty students in attendance. The Agricultural College has a faculty of six members, and there are about 240 pupils in attendance. The university at Mitchell was opened in September, 1885. It is under the management of the Methodist Episcopal Church. Pierre University, at Pierre, on Missouri river, is under the auspices of the Presbyterian Church. It is now in its third year, and has seven instructors. Thirty-five pupils are in attendance. Yankton College is the oldest collegiate institution in the Territory. It was established by the General Association of Congregational Churches in 1881. The faculty consists of seven professors, and 122 pupils are enrolled, twelve of whom are working in the college classes. Dakota Collegiate Institute, at Sioux Falls, is under the control of the Baptist Association.

Care of Insane.—The hospitals for the insane, one conducted on the old plan, and the other on the cottage plan, are successfully carried on, and with results as favorable to patients as in the older asylums of the East. The superintendent of the hospital at Yankton reports the number of patients May 30, 1886, as 124.

The North Dakota Hospital for the Insane

has been but a little over a year in operation, and more room is demanded. There were admitted from April 30, 1885, to June 30, 1886, 14 months, 188 patients. Number discharged, 22; number died, 5; total, 27.

Penitentiaries.—The following report from the Warden of the Territorial Penitentiary at Sioux Falls shows the condition of the prison June 30, 1886:

Number of inmates June 30, 1885	119
Number received to June 30, 1886	88
Total number of convicts during the year	157
Number during the year discharged	65
Remaining June 30, 1886	92

The Warden of the North Dakota Penitentiary, at Bismarck, reports as follows:

Number of prisoners transferred from Sioux Falls, July 31, 1885	35
Number received since from the courts of Northern Dakota	60
Number of prisoners handled	95
Number of prisoners discharged	48
Number of prisoners now here	52

The Black Hills.—There has been but little development even of the gold-mines, the few now in successful operation comprising but a small proportion of the valuable properties known to be in existence and awaiting development. The silver-camps at Carbonate and Galena are not half prospected. The tin discoveries are at this time awakening greater interest and inquiry than the precious minerals. Active operations have been begun, the necessary capital secured, and the early development of the tin-mines seems to be assured. The petroleum found in the Wyoming Hills is said to be fully equal to the best oil produced in Pennsylvania. Wells are now being bored in the oil district, which comprises a considerable area in the western rim of the hills. In the same vicinity there is salt in abundance, which is already finding its way into market. There are extensive mica-mines awaiting the further development which the railroad assures; there is asbestos in large quantities, and copper-mines waiting for the future; besides zinc and saltpeter, now too cheap to be developed at their present disadvantage of location. The Black Hills has the greatest mine of wealth, perhaps, in the almost inexhaustible supplies of building materials of all kinds which are found on every hand.

Railroads.—The year ending June 30 was marked by unusual activity in the construction of new railroads and the extensions of several of the old lines. The increase in mileage foots up 551.77 miles, and is divided as follows:

Burlington, Cedar Rapids, and Northern	9.80
Minneapolis and Pacific	29.64
Fremont, Elkhorn, and Missouri Valley	85.60
Northern Pacific	15.20
Milwaukee and St. Paul	176.60
Northwestern	71.03
Manitoba	163.40
Total	551.77

This increase makes the total number of miles of completed road in operation in Dakota, June 30, 1886, 2,897·67.

According to the returns made by the commission there are in Dakota 344 elevators and 306 warehouses, having an aggregate capacity of 13,843,000 bushels. Of these there are in North Dakota 206 elevators, 54 warehouses, 9,012,000 bushels, and in South Dakota 138 elevators, 252 warehouses, and 4,831,600.

Political.—The Republican Territorial Convention met at Yankton on September 22, and nominated O. S. Gifford for re-election as delegate to Congress. The platform demands "the immediate reduction of all the Indian reservations within the limits of the Territory," and denounces the President's vetoes of pension bills, and the administration of the General Land-Office under Commissioner Sparks. It contains, also, the following planks:

That recognizing the liquor-traffic as an evil, this convention declares in favor of the home as against the saloon, and pledges the party to such legislation as is necessary to protect the people of the Territory from the evil influences of the sale of intoxicating liquors as a beverage.

That the will of the people of all Dakota in favor of division of the Territory, on an east-and-west line, has been so clearly and so frequently expressed during the past fifteen years that there is no reasonable doubt of the determined purpose of a large majority to hold on steadfastly till this purpose is accomplished, and we earnestly ask Congress to pass such a measure without delay, said admission to be on the boundary-line of counties nearest the forty-sixth parallel.

That we heartily believe in the legality of the movement of the people of South Dakota to organize a State government, and that the defeat of the Harrison Senate bill in the House of Representatives was a blow at civil liberty.

The Democratic Territorial Convention met at Aberdeen on September 29, and nominated M. H. Day as delegate to Congress. A resolution favoring admission of the Territory into the Union as a whole was voted down. A resolution favoring the submission of the division proposition to a vote of the people was then adopted. The convention expressed itself in favor of division, and asked that the people confirm that sentiment at the polls.

The platform demands a graduated salary law for all county officers; denounces the Territorial Railroad Commission; demands the taxation of corporation property; asks for a law prohibiting officials from accepting railroad-passes; and calls for the publication of official matter in German and Norwegian papers. Finally, it favors the submission of the prohibition question as applied to the sale of liquor to a vote of the people.

On November 2, Mr. Gifford was elected by a large majority. The Legislature contains very few Democrats.

The total vote for delegate to Congress in 1886 was 104,811, which indicated a population in all of Dakota of 524,055. Of these votes Mr. Gifford, Republican candidate for Congress, received 66,932, and Mr. Day, Democratic candidate for Congress, received 37,879,

giving to the Republican candidate a majority of 29,053. In the south, Mr. Gifford has a majority of 21,023, and in the north a majority of 8,030. In 1884 Mr. Gifford had a majority of 31,117 in the south and 25,554 in the north, making a total of 56,672 in the entire Territory. South Dakota, at the late election, cast 65,765 votes, and North Dakota 39,046. This shows a population of 328,825 in the south half of Dakota, and of 195,230 in the north half of Dakota. The vote in the entire Territory has increased 17,984 in two years. In the south the increase in two years has been 11,196, and in the north, 6,788. In November Governor Pierce resigned, and Judge Louis K. Church was appointed his successor.

Constitutional Convention and Statehood.—The Constitutional Convention, which has been kept alive to provide for emergencies, met in July and adjourned to Dec. 15, when it met at Huron and remained in session two days.

The convention at this session annulled this section, so that the State government may be put in operation irrespective of admission into the Union. The following was passed:

That there shall be held an election, on the Tuesday next after the first Monday in November, A. D. 1887, for all State, legislative, and judicial officers, to fill those offices, the terms of which shall expire by limitation in the year 1887 or 1888; and that, at such election as the State Executive Committee may designate, the State Executive Committee may submit to vote the question, "Shall the State government go into full operation?"

The ordinance then specifies the form of ballot, the canvass of the vote, and the declaration of the result. It declares that if a majority of the votes favor the State government, that government shall go into operation as above specified. It leaves to the State Executive Committee the decision of the question whether there shall be an election.

DAVIS, DAVID, an American jurist, born in Cecil County, Md., March 9, 1815; died in Bloomington, Ill., June 26, 1886. After his graduation, at Kenyon College, Ohio, in 1832, Mr. Davis went to Massachusetts to devote himself to the study of law. After remaining there a short time, he entered the law school at New Haven, Conn., and when his course there was completed, removed to Illinois, and, after admittance to the bar in 1835, took up his residence in Bloomington. In 1844 he was elected to the State Legislature, and in 1847 was a member of the convention that formed the State Constitution. In 1848 he was elected Judge of the Eighth Judicial Circuit, an office that brought him into personal acquaintance and friendship with Abraham Lincoln, who was on the same circuit. Judge Davis was re-elected in 1855 and 1861, but in 1862 he resigned.

In 1860 Judge Davis was a delegate at large to the Republican National Convention held at Chicago, and after the election he accompanied Mr. Lincoln to Washington. In 1862 the President appointed Judge Davis Associate Justice on the Supreme bench of the United States.

After the death of Lincoln, his old friend was asked to administer his estate.

In 1870 Judge Davis, in sympathy with a minority in the Supreme Court, held that the acts of Congress making Government notes a legal tender in payment of debts was constitutional. In February, 1872, the National Convention of the Labor-Reform Party of the United States placed him on its ticket for President. The essential features of the convention were its declaration in favor of a national currency "based on the faith and resources of the nation," a demand for an eight-hour law throughout the entire country, and suggestion as to a method by which the national debt could be paid "without mortgaging the property of the people to enrich the capitalists." In his letter of acceptance, Judge Davis wrote: "Be pleased to thank the convention for the high honor which it has conferred upon me.



DAVID DAVIS.

The chief magistracy of the republic should be neither sought nor declined by an American citizen." The Convention of Liberal Republicans, which met that year in Cincinnati, gave Judge Davis 92½ votes on the first ballot for President; but when the regular Democratic and Republican candidates were in the field, Judge Davis wrote another letter, declining the Labor-party nomination, and refusing to enter the contest. On March 4, 1877, he resigned his seat on the Supreme Court bench, in order to accept a seat as United States Senator from Illinois, having been elected by a combination of Democrats and Independent Republicans in the Legislature of that State. He was considered an Independent, but his support was generally given to the Democratic party. In 1881 he was chosen President of the Senate, when Vice-President Arthur assumed the presidency upon the death of President Garfield; but in 1883 Judge Davis retired from the Senate and from active life, to his home in Bloomington, Ill., where he resided until his death. The degree

of LL.D. was conferred upon him by Wesleyan University, by Beloit College, and by Williams.

DELAWARE. State Government.—The following were the State officers during the year: Governor, Charles C. Stockley, Democrat; Secretary of State, William F. Causey; Treasurer, John M. Houston; Auditor, Nathan Pratt; Attorney-General, John H. Paynter; Superintendent of Free Schools, Thomas N. Williams. Supreme Court: Chief-Justice, Joseph P. Comegys; Associate Justices, William G. Whitely, John W. Houston, and Edward Wooton. Chancellor, Willard Saulsbury.

Finances.—During the past two years the State debt has been reduced only \$15,000. This is principally due to the liberal appropriations for schools, without any proportionate increase in the revenue. The message of the Governor to the Legislature of 1887 reviews the refunding of \$120,000 of the State loan in 4-per-cent. bonds, taken in New York at \$1,05.03. On Jan. 1, 1887, the State debt amounted to \$824,750. This debt is offset by interest-bearing investments, aggregating \$1,168,799. To this may be added: Prospective receipts, amounts due Jan. 1, 1887, \$57,796.31; amount of sinking fund, arising from the oyster revenue, \$4,629.79; balance in treasury belonging to the general fund, \$8,977.86. The report of the State Treasurer shows the receipts and expenditures to be as follow: Receipts—balance in the treasury at settlement with legislative committee January, 1886, \$7,815.49; receipts since that settlement to Jan. 1, 1887, \$121,190.61; probable receipts, due and payable January 1, \$57,796.31; total receipts, present and probable, \$186,802.41. Expenditures—total amount paid out to Jan. 1, 1887, \$120,028.24; leaving a probable balance of \$66,774.17. The sinking-fund biennial collections and outgoes show a balance to its credit of \$4,629.79.

Education.—The Superintendent reports the following statistics: Number of school districts in the State, 422; schools, 562, an increase of 18 since last report; number of months taught in 1886, 8·42, against 7·87 in 1884; white children between the ages of six and twenty-one years, 36,488; colored children, outside of Wilmington, 5,750; white children enrolled, 29,421; colored children, 3,563; average daily attendance, white children, 19,235; colored children, 1,008; average white children to each district, 86; averaged enrolled, 68; average daily attendance, 34; number of teachers, including Wilmington, 635; average monthly salary, \$32.40. Year after year, the report says, shows a gratifying improvement in the school system of the State, and in the interest taken by parents and guardians. In the colored schools substantial and encouraging progress has been made, the schools now numbering 69 outside of Wilmington. During the past year the disbursements amounted to \$7,166.69, of which amount \$4,655.63 came from

the State appropriation, and \$2,511.06 from the school-tax fund.

Insane Asylum.—After referring to arrangements in existence for the reception and care of indigent insane in Pennsylvania asylums, and the failure of those arrangements to give satisfaction, the Governor recommends that buildings be constructed or purchased suitable for a State insane asylum.

State-Prison.—The construction and arrangement of a substantial prison are recommended, wherein convicts can be compelled to labor at regular systematic work from the proceeds of which the expenses of their confinement might be met in whole or in part.

Temperance.—The Governor, in his message, refers to this subject at some length, and urges the enforcement and improvement of existing laws.

Constitutional Revision.—On this subject the Governor says:

For some time past public attention has been called to the subject of revision of the Constitution of our State by means of a convention.

Amendments by the Legislature have great advantages, securing careful deliberation before changing an established law in its separate wants, and without log-rolling. The difficulty is, to devise a plan so that reforms by means of legislative enactments may be more easily attainable. Article IX of the Constitution of the State provides that "the General Assembly, whenever two thirds of each house shall deem it necessary, may, with the approbation of the Governor, propose amendments to this Constitution, and at least three and not more than six months before the next general election of representatives, duly publish them in print for the consideration of the people; and if three fourths of each branch of the Legislature shall, after such an election and before another, ratify the said amendments, they shall be valid to all intents and purposes as parts of this Constitution." I would suggest that if the rate required for ratification was changed to two thirds instead of "three fourths" of each branch of the Legislature, it would enable reforms to be more easily attained, and you would still preserve the wholesome checks on ill-advised and hasty changes.

The same demand exists now as in the past, and I am satisfied is increasing, for a change in the present system of representation. Delay in this matter can not be long deferred. The reform in the judiciary system of the State should be thoroughly considered.

Political.—The Democratic State Convention met at Dover on Aug. 17, and nominated Benjamin T. Biggs for Governor and John B. Pennington for Congressman. The following platform was adopted:

The Democracy of Delaware, through their delegates in convention assembled, declare their adherence to the principles enunciated by the National Democratic Convention held in Chicago in 1884, and insist that their faithful observance in the management of public affairs is essential to proper government and the prosperity and happiness of the American people.

Federal taxation can only be rightfully imposed to provide for the necessary expenditures of the General Government, including the payment of pensions to persons entitled thereto, the maintenance of the public credit, and the gradual reduction of the public debt. We therefore favor such revision and modification of our tariff laws as will relieve the people of the country from unnecessary burdens while providing the necessary revenue to meet legitimate demands upon the Federal treasury.

The Democracy of Delaware, in common with the people of the whole country, recognize in President Cleveland an honest and patriotic Chief Magistrate, anxious to secure a proper administration of public affairs, and entitled to the confidence and support of the American people.

The Democratic party of Delaware points with pride to its management of the affairs of the State for the last thirty years as the strongest possible claim to the continued confidence and support of the people of the State.

The Republicans held no State Convention, and nominated no ticket.

James R. Hoffecker was the candidate of the Temperance Reformers for Governor, and Richard M. Cooper for Congressman. The vote for Governor was 13,943 Democratic and 7,732 Temperance. The Legislature is wholly Democratic.

DENMARK, a monarchy in Northern Europe. The executive power is exercised by the King, with the advice of his ministers; the legislative power by the Rigsdag, or Diet, in conjunction with the King. The King must be a member of the state church, which is the Lutheran Evangelical. The Rigsdag is composed of two houses. The Landsting, or upper house, has 66 members, of whom 12 are nominated by the Crown, and 54 elected indirectly. The Folkething, or popular body, consists of 102 members, elected directly by all citizens over thirty years of age, except paupers and household servants. The members of both houses receive pay. The Landsting selects from among its members the associate judges, who, with the ordinary justices of the Supreme Court, form the Rigsret, which is the highest tribunal, and is alone competent to try impeachments. All money bills must, in the first instance, be submitted to the Folkething.

The reigning King is Christian IX, born April 8, 1818, who was appointed to the succession by the Treaty of London, of May 8, 1852, and succeeded Frederick VII, the last of the direct male line of the house of Oldenburg, on Nov. 15, 1863. The Crown-Prince is Frederick, his son, born June 3, 1843.

The Ministry.—The Council of State consists of the following members: President, Jacob Broennum Scavenius Estrup, appointed June 11, 1875; Minister of the Interior, H. G. Ingwersley, appointed Aug. 7, 1885; Minister of Justice and for Iceland, J. M. V. Nellemann; Minister of Foreign Affairs, Otto Ditlev Baron Rosenørn-Lehn; Minister of War, Col. J. J. Bahnsen; Minister of Marine, Commander N. F. Ravn; Minister of Public Education and Ecclesiastical Affairs, J. F. Scavenius.

Area and Population.—The area of the kingdom is 14,124 square miles. The population of the city of Copenhagen, on Feb. 1, 1880, was, exclusive of suburbs, 234,850; of the Peninsula of Jutland, 865,678; of the islands in the Baltic, 868,511; of the Faroe Isles, 11,220; making the total population 1,980,259, which was divided into 962,832 males, and 1,017,427 females. There were, in 1883, 15,642 marriages, 66,394 births, and 39,323

deaths. The emigration, which is chiefly to the United States, was 6,307 in 1884, against 8,375 in 1883, and 11,614 in 1882.

Finances.—The revenue for the financial year 1885-'86 was estimated as follows:

SOURCES OF REVENUE.	Kroner.
Domains	1,103,596
Interest on reserve fund, etc.	5,450,677
Direct taxes.....	9,332,200
Stamp duties.....	2,629,000
Succession and conveyance dues.....	1,800,000
Legal fees.....	2,018,000
Customs and excise.....	27,963,000
Lottery.....	810,000
Other receipts.....	8,466,756
Total receipts.....	54,575,259

The estimated expenditures for 1885-'86 under the various heads are as follow:

BRANCHES OF EXPENDITURE.	Kroner.
Civil list and appanages	1,223,744
Rigstags and Council of State.....	306,616
Service of the debt.....	8,143,600
Pensions	8,507,266
Foreign Affairs	380,456
Interior	2,373,610
Justice	8,060,973
Public Works and Education	1,663,972
Army	9,190,052
Navy	6,090,895
Finance	8,195,274
Iceland	98,832
Extraordinary state expenditure.....	6,923,759
Extraordinary expenditures on public works, etc..	6,623,962
Total.....	52,787,451

The Government maintains a reserve fund for sudden emergencies. The public debt amounted to 200,855,227 kroner in 1883. About half of this sum is represented by railroads and other capital investments.

The Army and Navy.—All able-bodied Danes from the age of twenty-two are liable to serve eight years in the active army and its reserve, and are liable to service in the case of emergency for eight years more in the extra reserve. The training period is from four to nine months in the various arms, with a second period for the less intelligent and proficient lasting from nine to twelve months. The annual encampments last from thirty to forty-five days. The war strength of the regular army and reserve was in 1884 as follows: Infantry, 26,992; cavalry, 2,180; artillery, 4,755; engineers, 1,363; making a total number of 35,293 men, not including the 1,176 officers. The extra reserve numbers about 14,000 of all ranks.

The navy consisted in the beginning of 1886 of eight armored steamers and 26 others, mostly small, besides 10 torpedo-boats. The "Helgoland" has 12-inch plates, and carries one 36-ton and four 22-ton guns. The "Tordenskjöld" torpedo-vessel has no side-armor, but is divided into water-tight compartments, and carries a 50-ton gun in an armor-protected barbette. Besides this 14-inch Krupp breach-loader she has four of 6-inch caliber, and carries two swift torpedo-launchers and appliances for shooting Whitehead torpedoes.

Commerce.—The total value of the imports in 1883 was 288,514,845 kroner; of the exports, 199,862,572 kroner. The imports of cotton,

linen, silk, wool, hides, and dyes amounted to 51,854,264 kroner, the exports to 17,063,911 kroner; imports of cereals, including meal and malt, to 35,528,046, exports to 30,735,911 kroner; imports of tea, sugar, coffee, tobacco, etc., to 33,483,889, exports to 7,634,841 kroner; imports of metals and metal-wares to 31,030,250, exports to 7,006,814 kroner; imports of wood to 16,393,826, exports to 5,285,596 kroner; imports of fish, butter, cheese, eggs, and bacon to 16,360,245, exports to 50,114,706 kroner; imports of coal to 14,890,701, exports to 1,590,799 kroner; imports of seeds, hops, potatoes, and oil-cake to 13,031,133, exports to 1,136,616 kroner; imports of live animals to 7,415,343, exports to 84,893,585 kroner; imports of liquors to 5,664,986, exports to 2,565,326 kroner. Of the imports German furnished 35·5 per cent., Great Britain 22·7 per cent., Sweden 14·4 per cent., and the United States 6·7 per cent. Of the exports, 41·1 per cent. went to Great Britain, 29·7 per cent. to Germany, 15·1 per cent. to Sweden, and 5·7 per cent. to Norway, while the United States took 1·3 per cent. The most important articles of export are butter and live cattle. In 1881 there were 1,470,079 cattle in the country. The exports of cattle in 1883 were 137,082, the imports 21,560 head.

Navigation.—In 1884, 25,454 vessels, of 3,083,753 tons, were entered, and 24,485, of 3,052,865 tons, cleared at Danish ports. The tonnage under the Danish flag was 1,616,710; cleared, 1,657,827. The number of Danish vessels engaged in foreign commerce on July 1, 1884, was 1,318, with a total tonnage of 264,406; the number of steamers among these was 160.

Railroads.—The length of railroad in operation in 1885 was 1,150 miles, of which 948 miles belonged to the state.

Telegraphs.—The length of state telegraph lines at the end of 1883 was 2,360 miles; the length of wires, 6,532 miles. The number of messages in 1883 was 1,297,484, of which 548,210 were internal, 423,210 international, 25,263 official, and 300,761 in transit.

The Post-Office.—The number of letters and postal-cards carried in 1883 was 30,020,000; the number of newspapers, 33,091,000.

The Colonies.—Iceland, with an area of 39,756 square miles, and 72,445 inhabitants, has its own parliamentary system, established by the Constitution of 1874. The legislative body is the Althing, with 36 members, of whom 30 are elected by the people and the rest nominated by the King. The Minister for Iceland, nominated by the King and responsible to the Althing, directs the administration from Copenhagen through the Governor, called the Stiftamtmand, residing in Reikjavik.

The Icelanders in 1885 distinctly presented the national demand to be emancipated from the bureaucratic rule of Copenhagen. The Althing passed the draft of a new charter, abolishing the Danish Minister for Iceland, and

confiding the chief executive authority under the King to a governor resident there. The proposed revision of the Constitution also provided for the separation of the Althing into two distinct chambers, and for an extension of the electoral franchise. The Danish Government declared that it could not concur in the amendments, but dissolved the Althing, in order to allow the people to express their sense of the proposals, as it was required to do by the Constitution. In the newly elected Althing the proposed constitutional changes obtained an overwhelming majority, the reformers numbering 7 to 1 in the upper and 18 to 4 in the lower division of the Legislature. The Althing was closed on Sept. 8, 1886, a few days after assembling, having firmly insisted on the constitutional revision.

The colony of Greenland had a population of 9,780 souls in 1884. The possessions in the West Indies comprise the islands of St. Croix, 17 square miles in extent, with 18,430 inhabitants; St. Thomas, with an area of 23 square miles, and 14,389 inhabitants; and St. John, with 21 square miles of area, and 944 inhabitants. They are peopled mainly with free negroes, engaged in the cultivation of the sugar-cane, and export from 12,000,000 to 16,000,000 pounds of unrefined sugar and about 1,000,000 gallons of rum annually.

Repressive Measures.—The attempt to assassinate the prime minister on Oct. 21, 1885, gave the Government a pretext to resort to measures of repression and intimidation for the purpose of checking the radical tendencies of popular thought. The Chambers were at once prorogued to the 18th of December. On October 27 a gendarmerie law was enacted by executive decree. On November 2 the rights of freedom of speech and of the press were curtailed, and a control of the trade in weapons was instituted. The rifle-bands, which had begun to form after the infraction of the Constitution by the Government in the matter of the financial law, were rigorously suppressed by virtue of a decree promulgated on May 5. The gendarmerie, or political police, established in this wise, was particularly obnoxious to the country people, who are the strength of the Radical party in Denmark. The corps consists of four divisions of about one hundred and twenty-five men each, distributed over the country in detachments of about twenty-five men. They are under the direction of the Minister of War. Under the provisional press-law, the circulation of an American newspaper, the "Danish Pioneer," published in Omaha, Nebr., was forbidden in September, 1886. In August, 1886, a new provisional enactment was decreed, holding the actual editor of a newspaper responsible for its publications, and providing that the property can be levied upon if a fine is not paid. In October, 1886, the editor of the Socialistic organ was convicted under the provisional law of the previous November, though it had been rejected by Par-

liament, of exciting one class against another, a description of crime that was borrowed from German jurisprudence.

The Trial of Berg.—During the agitation that followed the unconstitutional promulgation of the budget law in the spring of 1885, the Government ordered police officers to attend political meetings. The officers presented themselves at the assemblages of the Opposition party in uniform and took their places on the platform. When Herr Berg, President of the Folkething and leader of the United Left, came before a meeting at Holstebro, a small town in Jutland, in June, 1885, he refused to speak unless the chief of police retired from the platform. The latter refused to step down at the request of the committee, and finally two of them removed him by force. Berg in his address affirmed that this act was perfectly legal. He was arraigned with the two committee-men in October before the judicial commission, under a clause in the penal code making it criminal to obstruct a public officer in the execution of his duty. All three were condemned to six months' imprisonment, with common prison-fare. When the Folkething reassembled a few days later, Berg was again demonstratively voted into the chair. He had pleaded that he had not incited nor taken any part in the act; yet when the case was finally decided on appeal by the Supreme Court on the 11th of January, 1886, the sentence was confirmed in the case of all three of the accused. The conviction of Berg was decided by the casting vote of the presiding judge, the other twelve being evenly divided. On January 13 he announced that he would be compelled to vacate his office in order to serve the criminal sentence, but was re-elected by the vote of 71 out of the 86 deputies; yet while the Rigsdag was in session he was taken to prison. Herr Horup, the Vice-President, took his place as Speaker, and not many days afterward was himself tried for insulting the King in his newspaper, and condemned to pay the costs of the trial. On February 8 the Rigsdag was closed, and a provisional budget for 1886-'87 decreed.

The Constitutional Conflict.—The clause in the charter empowering the Government to enact provisional laws in urgent cases, when the Rigsdag is not sitting, requires such laws to be submitted for ratification at the next session of the Legislature. The provisional money bill that was promulgated by royal decree on April 1, 1885, the same day on which the Rigsdag was closed by the Government, differed from previous provisional finance laws in authorizing expenditures that the Folkething had objected to. In compliance with the constitutional requirement, the ministry submitted the provisional finance law of April, 1885, to the Folkething, where it was rejected on Jan. 25, 1886. The Government then determined to usurp the legislative powers, and refused to recognize further acts of the Folkething. A

royal decree was issued on Jan. 26, authorizing the Government to raise taxes and defray current expenses, although the charter forbids taxes to be raised before the budget has been passed. The Government did not professedly abrogate the Constitution, but defeated its main provisions by new interpretations, which even the principal jurists of the Ministerial party condemned. Parliament was immediately prorogued, because the ministry desired to keep up the pretense of parliamentary government by obtaining the indorsement of its acts by the Landsting. The provisional laws restricting the sale of arms, suppressing volunteer military bodies, establishing a military constabulary, restricting the freedom of speech, and authorizing the Minister of Justice to incur whatever expenditure he thinks fit for the police, were ratified by that branch of the Legislature. The ministers did not submit these bills to the Folkething, but, exercising their right of initiation, members of the majority proposed them, and they were rejected in due form. The budget was not submitted to the Folkething, the finance minister defending his action in bringing it forward in the Landsting with the argument that an identical budget had been already acted upon by the lower house. The session was closed on Feb. 2. The Folkething defeated the measures proposed by the ministry, which rejected, on its part, all those that were carried in the popular chamber, where there were 83 members in opposition and only 19 Ministerialists. Of 41 bills brought forward on both sides, only one was passed.

The main point of difference between the ministry and the popular party is the question of taxation, which is becoming more urgent under the conditions of depression in agriculture, trade, and manufactures that prevail, and are aggravated by the bitterness of the constitutional struggle. The ministry has on its side only the great landlords, who aim at the restoration of the political powers and immunities that were taken from them in the reform reign of Frederick VII, the bureaucracy, and middle-class people of aristocratic sympathies, while the popular party embraces almost all the farmers, all the workingmen, and a large part of the trading and manufacturing community. The Government has received each year a considerable surplus of taxes over the expenditure. In 1884-'85 the aggregate revenue amounted to 57,000,000 kroner, while the expenditure was 48,000,000 kroner. The annual receipts in excess of requirements have rolled up the balance in the treasury from 23,000,000 kroner in 1877 to 59,000,000 kroner on March 31, 1885, while large sums have been applied to paying off a part of the national debt, and to railroads and other public works. The people demand a reduction of taxation, especially where it presses unequally on the poorer classes. The ministry is willing to agree to a revision of the tariff and the abolition of the

navigation tax, which hampers foreign shipping, but insists that the treasury must be compensated by the imposition of new taxes yielding an equal amount of revenue. The customs tariff of 1863 taxes heavily the most important and most necessary articles of consumption: also raw materials, such as coal, timber, and metals. The duties were increased by the war-tax of 1864, intended to cover the losses of the war with Germany. These extraordinary taxes have already yielded more than enough to compensate the treasury for the war expenditure. The finance minister, Estrup, refuses to relinquish the unnecessary imposts, because the Government is likely to require the surplus for increased military and other expenditures. The project for national defense works was rejected in 1876, and the people sustained the action of the Folkething by returning a majority of three fourths against the Government. The Folkething has been willing to vote considerable sums for military purposes, but rejects the project for fortifying Copenhagen on the land side as unreasonable and incommensurate with the resources of the country, if not useless for practical defensive purposes. The Government proceeded this year to treat this repeatedly rejected scheme as an urgent matter of current expenditure, which the Executive was authorized by the Constitution to provide for. The King, on April 2, approved the budget in the form in which it had been voted by the Landsting, showing a surplus of 300,000 kroner, and authorized extraordinary expenditures by the war ministry of 3,000,000 kroner for forts and 500,000 kroner for guns, and by the naval ministry of 3,000,000 kroner, of which 1,200,000 kroner were for torpedo-boats and mines.

Session of 1886-'87.—The budget laid before the Folkething at the opening of the new session in October, 1886, placed the revenue at 53,391,000 kroner, and the expenditure at 62,500,000. The deficit, caused by extraordinary expenditure on fortifications, the ministry proposed to cover by drawing on the balance in the treasury. The Minister of War, who in 1884 estimated the cost of fortifying Copenhagen at 33,000,000 kroner, now demanded 31,500,000 kroner for the works on the land-side, and 14,666,000 kroner for the maritime fortifications, the expenditure of the first sum to be spread over five years, and of the second over seven. The Folkething stood firm in its refusal to accept the plan of the Government for the fortification of the capital, which, it was expected, would cost from 90,000,000 to 150,000,000 kroner, yet voted an exceptionally large budget. The provisional financial law for the current year was declared to be unconstitutional, and was rejected by 72 to 17 votes. The lately issued provisional laws regarding the responsibility for newspaper articles and the reorganization of the criminal and police courts were also refused the sanction of the Legislature. The strife between the ministry and the

Chamber that was elected in 1876 was finally ended by the dissolution of the Rigsdag on Jan. 8, 1887. The new elections were appointed for Jan. 28.

DISASTERS IN 1886. The disasters of the year have been marked by the somewhat unusual violence of storms and earthquakes. The following list includes those that have been conspicuously fatal to human life, on land and sea. Accidents where only a single life has been lost are generally omitted, though in the aggregate they no doubt largely exceed the more startling disasters that involve the death or injury of many persons. On railways, for instance, there are here specified only 24 accidents, with 127 killed and 214 injured. There were, in fact, in the United States and Canada, 1,211 accidents, 401 killed and 1,433 injured.

January 1. Fire; seed-warehouse burned in Detroit, estimated loss \$1,500,000; 1 fireman killed, several injured.

3. Earthquakes and violent atmospheric disturbances in the Argentine Republic.

4. Railway; bridge breaks near Duncannon, Pa.; 4 killed, 5 injured.

5. Floods in Pennsylvania coal-regions; heavy losses in Williamsport, Pottsville, Shenandoah, and vicinity.

9. Destructive storm all over the northern United States and Canada; many lives lost by wrecks and otherwise. Railway collision near Wilmington, Del.; 3 killed, several injured.

10. Railway; bridge breaks near White's Station, Ala.; 3 killed, 21 cars burned. Fire in Philadelphia; estimated loss, \$1,500,000. Shipwreck; British steamer Hylton Castle founders at sea; all hands saved.

11. Fire; flour and woolen mills in Chicago; loss, \$800,000.

13. Explosion in a colliery at Evanston, Iowa; 13 killed. Railway collision near Michigan City, Ind.; 4 killed. Fire in Montreal; loss, \$500,000. Shipwreck; Norwegian bark Kroljevike; 7 of crew and 8 life-saving crew lost.

14. Earthquake in Amatitlan, Guatemala. Railway accident in Peru; 30 soldiers killed. Shipwreck; Gloucester fishing-schooner Mabel Dilloway; 16 lives lost.

15. Railway collision near Harper's Ferry, Va.; 3 killed. Frozen to death; 3 persons in South Carolina, and 3 in Virginia.

16. Railway-train derailed near Pelhamville, N. Y.

17. Explosion; fire-damp in Almy mine, Wyoming; 13 killed.

20. Railway; train derailed near Albany, Mo.; 1 killed, 14 injured.

21. Explosion; fire-damp in Orrell coal-mine, Newburg, W. Va.; 39 killed.

22. Storms in the West; several lives lost by flood and avalanche.

23. Explosion; locomotive-engine at Madison, Wis.; 1 killed, several wounded.

26. Fatal snow-slides in Colorado.

30. Falling houses in London, England; 6 killed. During the month 8 persons were killed and 20 injured in the Pennsylvania coal-regions.

February 2. Shipwreck; American steamship Rapidan sails from New York; never heard from; about 20 lives lost.

3. Explosion; a large quantity of dynamite near Fordham, N. Y.; 1 killed, several injured, and many buildings damaged.

4-7. Severe storms; causing much damage in the United States, and many shipwrecks at sea and on the lakes.

10, 11. Severe rain-storms throughout the Northern States; much damage from floods and wash-outs.

10. Explosion; boiler in Boston; 5 killed.

11. Shipwreck; bark Karl on Barnegat Shoals, N. J.; 10 men drowned, including 3 of the United States life-saving crew, who went to the rescue.

13-15. Floods in the North Atlantic States; heavy damages in Boston, Providence, and Fall River; several lives lost.

15. Shipwreck; British steamer Douglass, at Swatow; 18 lives lost.

16. Fall of building in Liverpool, England; several killed; 18 severely injured. Fire in Plymouth, Wis.; 5 lives lost.

17. Shipwreck; Austrian ship Miroslav sails from Philadelphia; never heard from; 20 lives lost.

26-28. Wind-storm of great severity (85 miles an hour) in the North Atlantic States; many shipwrecks and much damage by wind.

26. Shipwreck; steamer Idlewild, near Stamford, Conn.; 8 men missing. Railroad-train derailed by cattle; 2 men killed, 21 injured.

March 2. Railway; trains derailed near Belleville, Ontario, Bethel, Me., and Fish's Eddy, N. Y.; 11 killed, 17 injured. Shipwreck; American bark Surprise, on the coast of Madagascar.

4. Fire; oatmeal-mills in Akron, Ohio; loss nearly a million; small insurance.

8. Explosion; Dunbar, Uniondale mine; 2 killed. Explosion; steam-tug Rifleman, in Cardiff harbor, Wales; all hands killed—6 men, and 1 killed on an Italian ship a quarter of a mile distant by falling débris. Fire; destruction to shipping in Jersey City.

12. Railway, Monte-Carlo, Mentone; 5 killed. Railway; derailment near Eckford, Mich.; 1 killed, 29 injured.

14. Shipwreck; British steamer Oregon sunk by collision with unknown vessel off Fire Island at early dawn; 600 passengers; all hands saved. British steamer Beda founders off Cape Perpetua; 12 lives lost.

19. Disastrous floods in Germany.

20. Explosion on steamer Columbia at the island of Tumaco; 15 killed. Floods; great damage in the Southern States.

21. Fire; in Helena, Ark., the business portion of the town burned.

31. Railway; derailment near Huntingburg, Ind.; 1 killed, 25 injured.

April 7. Railway; train derailed near Deerfield, Mass.; 12 killed, many injured. Derailment near East Saginaw, Mich.; cause, wind; 11 injured.

14. Railway; derailment near Oskaloosa, Neb.; 2 killed, 13 injured. Tornado; towns of Sauk Rapids and St. Cloud, Minn., wrecked; 70 killed, many injured, and much property destroyed.

17. Fire; the town of Stry, Galicia, nearly destroyed; 128 lives lost.

20. Flood; dam gives way near East Lee, Mass.; 7 drowned; much loss of property.

May 1. Fire; town of Akita, Japan, almost totally destroyed; 3,000 houses burned.

6. Storm, wind, rain, and hail in Kansas City; 20 killed; much damage done.

12. Hurricane in Spain; 82 killed in Madrid; 620 injured. Storm in Ohio and Indiana; 24 killed at Kansas City, 30 injured.

24. Railway; collision near Brompton, Ont.; 40 injured.

29. Drowned; Rev. C. Jerome, his 3 children and a visitor, in Lake Winnebago, N. H.

31. Boiler-explosion at Palestine, Texas; 2 killed, 17 injured. Lost at sea; British steamer Lyceum, with 70 persons on board, off the coast of Australia.

June 3. Railway; collision near Waldron, Ill.; 3 killed, 24 injured. Yellow-fever epidemic at Colon.

7. Railway; derailment near Santee Swamp, S. C.; 7 killed, 18 injured. Fire; in Chicago; 8 lives lost.

9. Fire; glass-factory in Montreal; loss, \$140,000.

10. Volcanic disturbances in New Zealand; 21 killed; much property destroyed.

14. Gale; Galveston, Texas, inundated; much dam-

age, and several lives lost, by wind and sea. Fire; city of Vancouver almost totally destroyed.

25. Explosion in colliery near Rochamp, France; 24 killed.

July 2. Explosion; dynamite in Atlantic Company's works near McCainsville, N. J.; 10 killed. Shipwreck; 8 French torpedo-boats founded in a storm in the Atlantic; 50 lives lost.

5. Fires; Harlem, N. Y.; loss, \$200,000; Cohoes, N. Y.; loss, \$200,000; Chicago; 2 killed, 4 injured; loss, \$30,000. Railway; collision in Scotland, between Edinburgh and Glasgow; 35 injured.

7. Earthquake at Malaga.

15. Explosion; an old artillery shell in St. Petersburg, Russia; 16 killed, several injured.

19. Gale on the North Atlantic coast; much damage at Far Rockaway, N. Y.

28. Fire; theatre at Tinnevelly, British India; about 100 lives lost.

30. Shipwreck; American schooner Sarah Craig, with pleasure-party of 11 persons on board, capsized off Sandy Hook; 7 drowned.

31. Explosion (supposed malicious intent); dynamite, at Reading, Pa.; church blown up. Floods; great damage and loss of life in the New England and Middle States.

August 4. Drowned; 7 members of one family in the harbor of Portland, Me.

9. Earthquakes continued in New Zealand.

11. Tornado in central New York.

12. Shipwreck; two yachts capsized near Boston; 10 drowned.

13. Explosion; in Woodend colliery near Leigh, Lancashire, England; 36 killed.

15. Hurricane; Newburg, Ind., destroyed.

17. Earthquake in Malta.

20. Hurricane in the Gulf of Mexico, and 200 miles inland, along the coast of Texas; 38 lives lost. Galveston suffered most severely, and property was destroyed to the estimated value of \$5,000,000.

21. Fire in San Francisco; estimated damage, \$2,000,000.

23. Flood; Irrawaddy River, Burmah, bursts its banks, and floods the city of Mandalay; 25 lives lost.

25. Railroad; runaway train near Saluda, N. C.; 5 killed, 8 injured; most of them convicts. Shipwreck; French ship L'Etoile, strikes a reef and sinks at once; 12 lives lost. Horses run away with a carriage containing Senator W. M. Evarts, Judge Stanley Matthews, C. C. Perkins, and Miss Matthews; Mr. Perkins killed, and all the rest injured.

28. Earthquake in Greece, affecting the neighboring islands; 600 lives lost; several towns destroyed.

29. Fire; steamer Daniel Drew burned at her moorings near Kingston, N. Y.

30. Explosion; fire-damp in Fairlawn Colliery, Scranton, Pa.; 5 killed. Railway; collision near Vienna, Austria; 7 killed.

31. Earthquake; central in South Carolina, but affecting nearly all the territory of the United States east of the Mississippi River. In Charleston, nearly every building was damaged, and some were thrown down; 61 lives lost. The shocks continued with decreasing violence for about two months.

September 4. Yellow fever at Biloxi, Miss. Fires in Jersey City, N. J.; Milwaukee, Wis.; Pittsburg, Pa.; and Long Island City, N. Y.

5. Railway; collision near Curtis Bay Junction, Md.; 15 injured.

12. Panic in Pilgrimage Roman Catholic Church, Radna, Transylvania; 15 killed, 100 injured.

13. Mine caves in near Scranton, Pa.; 1 killed, 6 buried, but afterward rescued.

14. Railway; collision on the New York, Chicago, and St. Louis Railroad, called the "Nickel Plate," 30 miles west of Buffalo. Baggage and smoking-car telescoped; 13 killed, 7 fatally injured, 12 seriously.

16. Tornado; Illinois, Indiana, Wisconsin, and Michigan; several towns wrecked, and lives lost.

24. Lightning; 5 oil-wells set on fire at Lima, Ohio,

27. Fire; 30 buildings burned at Deland, Florida. 30. Explosion; powder-works near Baychester, N. Y.; 4 killed.

October 3. Explosion; fire-damp in a colliery near Wakefield, Yorkshire, England; 24 killed.

5. Explosion on steamer La Mascotte, near Neeley's Landing, Cape Girardeau; 22 killed.

12. Gale in Gulf of Mexico, Sabine Pass destroyed; 102 lives lost; Johnson's Bayou, La., destroyed; 145 lives lost.

14, 15. Hurricane in Great Britain, much damage done, and many lives lost. Fire; a large part of Eastport, Me., burned.

21. Explosion; 600-pound shell at Sandy Hook Government experiment station; Lieut. Metcalfe and Private King killed; several injured.

28. Railway accident near Rio, Wis.; 13 killed.

30. Shipwreck; Cunard steamer Pavia struck a rock and had to be beached in Boston Harbor.

November 3. Railway accident between Nicolaief and Odessa; 40 soldiers killed.

9. Explosion; 3 powder-houses near Lake Hatcong.

11. Floods in the south of France.

14. Explosion on Chinese steamer Tokatman, off Niigata; 96 lives lost.

15. Shipwreck; steamer Normantore founders off Pashima, Japan; 60 lives lost.

16. Fire; town of Durham, N. C.; business section burned; loss, \$500,000.

17. Fire in Baltimore; 3 firemen killed by breaking of ladder. Town of Salisbury, Md., almost wholly burned.

17-23. Storms; terrible gales on the Great Lakes; about 30 vessels wrecked; 50 lives lost.

24. Fire at Forsyth, Mo.; estimated loss, \$390,000.

25. Explosion; tug Sunbeam in East River, N. Y.; 6 killed.

27. Shipwreck; British steamer Westernland; struck by a sea; deck crushed in; 6 men killed, 18 injured. Fire; grain-elevators burnt at Duluth; 3 lives lost; estimated damage, \$850,000.

29. Shipwreck; life-saving crew at Point au Sable, Mich., answer false signals of distress from a schooner; 3 drowned.

December 3. Fire; town of English, Ind., nearly destroyed.

4. Railway; collision near Balcony Falls, Va.; 4 killed.

9. Explosion; locomotive-engine, near Jersey shore, Pa.; 4 killed.

10. Railway; collision near Memphis, Tenn.; 4 killed—viz., the conductor, and 3 tramps, who were stealing a ride.

14. Railway; broken bridge near Chapel Hill, N. C. The whole train fell 20 feet; 5 injured; car took fire.

22. Railway; train derailed near Henderson, N. C.; 11 injured.

25. Explosion; kerosene at Newberne, N. C.; 3 houses burned; 2 lives lost.

31. Railway; collision near Devil's River, Texas; 5 killed, 10 injured.

DISCIPLES OF CHRIST. The Disciples of Christ, while they have no general official organization, are represented in general missionary work by three voluntary societies, viz.: the General Christian Missionary Convention, which was organized in 1849 as the American Christian Missionary Society, and reorganized under its present name in 1881; the Christian Woman's Board of Missions, which was organized in 1874; and the Foreign Christian Missionary Society, organized in 1875. The first society labors chiefly in the United States, the third in foreign countries, and the Woman's Board co-operates with both. The annual

meetings of the three societies were held in Kansas City, Mo., October 19 to 23.

American Christian Missionary Society.—The Rev. Isaac Errett presided over the meeting of the American Christian Missionary Society. The report of the Executive Board showed that thirty-two missionaries had been laboring under its direction in Arkansas, Alabama, Arizona, Colorado, California, Florida, Dakota, the Indian Territory, Kansas, Massachusetts, Mississippi, Minnesota, Nebraska, South Carolina, Wisconsin, and Washington Territory. They returned, as the result of their efforts, 19 churches organized and 1,549 additions. The work of this board was supplemented by that of State organizations in 36 States, employing 181 missionary agents, who returned 62 churches organized; 3,770 converts baptized; 2,618 other additions; and \$97,388 of contributions for home missions. The financial statement of the General Board showed that the amount of the contributions was steadily increasing. Since the organization of the society and the State associations more than \$1,560,000 had been collected and expended for carrying out their objects.

Foreign Christian Missionary Society.—Gen. F. M. Drake, of Iowa, was President of the Foreign Christian Missionary Society. Its receipts had been \$64,556. It had 43 missionaries employed at 24 stations in France, Denmark, Turkey, England, India, China, and Japan, and returned 537 conversions during the year.

Woman's Board.—The Christian Woman's Board returned 539 auxiliary organizations, 117 of which had been formed during the year, and an income greater than had been received in any previous year. It has charge of the children's organizations in the Sunday-schools, which, beginning with the gift of \$754 in 1881, when they were first formed, have increased their contributions at an average rate of about \$1,000 a year, till, in 1886, they amounted to \$6,035. These offerings are devoted principally to assisting in the support of the missions in India, China, and Japan.

Report on Union with Free-Will Baptists.—Progress was made at the meetings in the conferences for union with the Free-Will Baptists, in furtherance of which a committee had been appointed at the preceding meeting of the General Convention. The committee reported, saying that, in all overtures for union with other bodies, it was assumed that the Word of God would be accepted as the only and all-sufficient rule of faith and practice, and that all utterances would be conformed to this standard of doctrine and worship. Granting this as a basis, union was not only desirable, but an imperative duty. All intercourse should be had with this object in view, and adjustments of relations between Free-Will Baptists and Disciples in the same localities could be made without sacrificing principles, so as "to insure harmonious action and unity of worship, and thus secure immediate co-operative union

and ultimate organic union." The report then considered what applications of names would be proper; what should be the conditions and forms of the admission of members; advocated a weekly communion; advised the union of the members in each locality in supporting a good and capable man as preacher, recognizing his standing in the Christian ministry, regardless of past affiliations, who would prudently regard the points of adjustment and the Scriptural standard of doctrine. As to co-operation, the report continued, "Let the several congregations exercise their liberty in sending messengers to associational or conventional meetings of the two bodies as now constituted, and contribute to the enterprise of either or both bodies at the pleasure of individual contributors." These propositions had been submitted to the Free-Will Baptist General Conference in the previous week, and had been, according to the committee's account, favorably received by the members of the same, and responded to by the appointment of fraternal delegates to attend the next General Christian Missionary Convention. The committee was continued.

DRUGS, NEW. Acetophenone (called also, for sake of brevity, *hypnone*) is found to be a very powerful producer of sleep, in doses of one to three grains, for adults, best given with glycerin and in gelatin-capsules. It is preferable to chloral or paraldehyde in cases of alcoholism. Hypnone is best prepared by distilling a mixture of benzoates and acetates of calcium, or by the action of zinc methyl on benzoyl chloride. It forms large, crystalline laminæ, melting at 57° Fahr.; has a sp. g. of 1.032 at 60° Fahr., and by oxidation is converted into carbonic and benzoic acids. Further trials do not substantiate its claims as a sleep-producer, and its creosote-like flavor is often an objection to its use.

Antifebrin is a new derivative of aniline, the scientific name being acetanilide, or phenylacetamide ($\text{NHC}_6\text{H}_4\text{CO}_2\text{H}_2\text{O}$). Its value consists in its power of reducing fever, it being estimated as four times as great as that of antipyrin. It is made by heating aniline and glacial acetic acid for forty-eight hours in a flask provided with an upright condenser, then distilling, when acetanilide is obtained in an impure state, and then purified by crystallization from benzol or boiling water. It is a white, crystalline powder, without odor, and has a burning taste; melts at 101° (or 112°) C., soluble in 189 parts cold water at 42.8° Fahr., and more soluble in alcohol or ether; not precipitated from the former by addition of water; soluble in benzoin, benzol, and essential oils; neutral; not affected by alkalies, unless they are very concentrated, nor by sulphuric or hydrochloric acids. It forms no salts. Its dose is five to thirty grains *per diem*, and its effects are apparent in about an hour; highest in four hours. It rapidly lowers the temperature in fever, and abates or stops the pain in acute rheumatism. A dose which is

strong enough to lower the temperature, keeps it thus for six to eight hours, and causes no stomach disturbance. The wholesale cost is about four dollars per pound in Germany—where, only, it has thus far been made. It is administered mixed with water, or wine, or in wafers.

Arekaine, reported to be a constituent of betel-nut, is a colorless, volatile, oily alkaloid, smelling like weak meat-broth, and having a strong alkaline reaction. Its use retards the pulse, purges, and increases the flow of saliva.

Asiminine, lately discovered and named by Prof. J. U. Lloyd, is derived from *Asimina triloba*. Its use on animals is followed by a state of excitement followed by one of sleep, passing into stupor and insensibility, respiration becoming rapid in the first and slow during the second stage. It is a possibly valuable addition to the list of hypnotics and anodynes. The alkaloid is prepared from the seeds, and is white, colorless, tasteless, and practically insoluble in water; freely soluble in ether and alcohol, and less freely in chloroform and benzol. The usual alkaloidal salts are freely soluble in water, excepting the hydrochlorate, which is less soluble, but the most available owing to facility of production. The hydrochlorate is white, odorless, and has at first a sweetish, then a bitter flavor. Solutions of all its salts are bitter.

Buxine, the active principle of *Buxus sempervirens*, is found to be identical with the berberine of *Nectandra*, and pelosine, of Pereira. It is bitter, colors litmus-paper blue; is soluble in alcohol, less so in ether, and almost insoluble in water, and is decomposed by nitric acid. Courbe prepared it by boiling with magnesia a watery solution of alcoholic extract of box, dissolving the precipitate in alcohol, decolorizing with animal charcoal, filtering, and evaporating. Barbaglia's process is to treat the leaves and stalks with dilute sulphuric acid; precipitating with excess of carbonate of soda or of lime, and drying the precipitate at moderate temperature, when it is acted upon by absolute alcohol; the alcohol is distilled off, and the residue again treated with dilute sulphuric acid, and again precipitated by an excess of carbonate of soda or lime at a temperature of 40° to 50° C. A current of carbonic-acid gas being then passed through the mixture, redissolves buxine as bicarbonate, and separates a resinous substance. The solution is neutralized by ammonia, and the buxine separates in perfectly white condition. It is used as a remedy for ague. Its salts are very bitter, and form gelatinous precipitates with alkalies.

Caeur is an African fruit derived, it is believed, from *Cucumis myriocarpus* (Naudin), a green annual common to Cape Colony and the Free States. The plant produces fruit abundantly, in form sub-globose, about the size of a large gooseberry, and weighing sixty to one hundred grains. It is beset with soft and

short prickles. A section shows three parietal placentæ, numerous seeds imbedded in a soft, viscid pulp, which becomes mere fluid when warmed. The pulp is bitter and has the odor of cucumber. It is one of the most commonly employed of the many emetics used by Caffres, who heat the green fruit, and squirt the contents into the mouth, vomiting occurring about fifteen minutes after swallowing.

Chrysophan, according to Dr. Kubli, is present in some varieties of rhubarb; and chrysophanic acid, heretofore believed to be a constituent, is really the product of a chemical change produced by water. This accounts for the deposition of the acid in dilute alcoholic extracts.

Conessine has lately been produced from the bark of *Holarrhena Africana* (D. C.), in considerable quantities, the conessa-bark (or *Cortex antidysertericus*) containing about ten per cent. Aside from the value of the bark as a remedy for dysentery, the alkaloid is peculiar (like *aribine*) in containing no oxygen.

Francisceline, an alkaloid derived from the manaca-root of Brazil (*Franciscea uniflora*, et al.), is reputed to be a stimulant to the action of the bowels, kidneys, skin, and uterus.

Gelosine is the name given to the jelly made from a Japanese alga (*Gelidinum cornutum*), and used as a vehicle for external medication, rather than on account of inherent medicinal properties. It mixes with all pharmaceutical substances soluble in alcohol or water. It is procured in the market in the shape of whitish leaves or films, and absorbs an immense proportion of water (550 times its weight), which it extrudes as it dries. In practice it is soaked in an equal weight of hot water, and the medicinal element is then incorporated with it; when, on cooling, it reaches sirupy consistency, it is poured into molds. It is not liable to putrefaction.

Ichthyol, a peculiar product obtained from bituminous rock found near Seerfed, in Tyrol. A tarry product, of offensive odor, results from dry distillation in iron retorts, and separates, by standing, a fluid, dark-colored oil. This, being treated with sulphuric acid, liberates sulphurous acid. The product is neutralized with an alkali, and the resulting salt contains about 10 per cent. of sulphur in combination. The ammonium salt, which is the one now generally used, is really the sulpho-ichthyolate of ammonia, and is employed as a local application in skin-diseases. It is a reddish-brown, clear, sirupy liquid, with empyreumatic, bituminous odor and taste. Soluble in water, and in a mixture of equal volumes of alcohol and ether, but slightly soluble in pure alcohol or ether. Oil of lavender is said to disguise its odor best.

Iodol is at present prepared from the volatile oil known as "Dippel's Animal Oil." The pyrrol, which this oil contains, is freed as much as possible from accompanying substances, and its solution is then treated with a solution of iodine and iodide of potassium. Tetra-iodo-

pyrrol is deposited in crystalline state, and four molecules of hydriodic acid are produced. Iodol is the abbreviated name for this substance. It appears as a light-brown powder, darkening by exposure to light; is almost tasteless, with a faint odor of thymol. Examined with a microscope, it is a *débris* of fragments of lamellar and columnar crystals of light-yellow color. Up to 212° Fahr. it does not appear to alter nor to lose weight, but above that degree of heat it gives off iodine, and leaves a bulky charcoal, reducible with difficulty to ash. It requires 5,000 parts of water for solution, but only 3 parts of absolute alcohol. It is not very soluble in glycerin, but requires less than its weight of ether. It contains 88·9 per cent. of iodine (iodoform has 96·6 per cent.). It was discovered by Drs. G. Cianician and P. Silber, of Rome.

Kava-kava, or **Piper methysticum** (Forst.), contains in its root a resinous substance which has been found to produce local anaesthesia. Its taste is aromatic, followed by a sense of prickling and burning, which is soon lost in local insensibility. Injected under the skin the tissues become insensible, and its effects are not followed by inflammation. The constituents of the root are a resin, kawin; a neutral substance, kawahin (or methysticin), and an ethereal oil. Kawahin can be separated in the form of white, needle-shaped crystals, and from the mother-liquor another crystalline substance, called tangarin, can be produced. The medical virtues appear to reside in the resin, and not in the crystalline bodies, and this is divisible into an alpha-resin and beta-resin: the α -kawa-resin possesses the odor and flavor of the drug; is soluble in alcohol, chloroform, and ether; imparts its odor to water boiled with it; leaves a permanent, oily stain on paper; boiled with water the latter turns yellowish-green, and oily particles collect on the surface; on cooling the liquid becomes milky. The α -kawa-resin costs about one mark per gramme; the β -resin about 0·30 mark. The anaesthetic effect of the α -resin is greatest. Even a minute portion placed on the tongue causes first a fatty or soapy taste, followed by numbness and loss of sensibility in the surfaces with which it comes into contact. There is slight paleness of the membrane, and these effects last ten or more minutes.

Kelline is a ternary substance derived from kella-seeds (*Ammi visnagra*). A decoction of the seeds has been used as a remedy for rheumatism and urinary gravel, and ointment made with the seeds as an application to rheumatic joints.

Lactate of Morphine is the only salt of morphine which crystallizes from water in an anhydrous condition. Its formula, according to D. B. Dott, is $C_{17}H_{19}NO_3.C_6H_6O_3$. It is soluble in 8 parts of water and in 93 parts of alcohol of sp. g. 0·888 at 60° Fahr.

Lanolin, a fatty substance, derived from sheep's wool, differs from the ordinary or

glycerin fat, in having cholesterine as a base. The crude fat is known as suint. The name is derived from *lana*, wool, and *oleum*, oil. It is produced by emulsifying suint, and then churning it, when the lanolin separates. It is capable of absorbing more water than any other known fatty body, more than 100 per cent. being incorporated with it by kneading. It does not dissolve in water, and forms a thick milk with soap or alkalies. It is absolutely neutral, and is not capable of spontaneous decomposition. It mixes readily with glycerin, and forms an admirable basis for ointments containing remedies to be introduced through the skin, owing to the rapidity with which it is absorbed. It has little or no odor.

Lantanine, an alkaloid recently found in *Lantana Brasiliensis* (family *Verbenaceæ*), is said to moderate the circulation, retard nutrition changes, lower the temperature, and, in doses of 30 grains, conquers intermittent fevers that have resisted quinine. It does not disturb the stomach. Dr. Buisa, of Lima, is its discoverer.

Myrtol (presumably the stearopter of oil of myrtle, from *Myrtus communis*), is lately proposed as an antiseptic and disinfectant. About 2½ grains in capsules, before meals, is recommended by Dr. Linarix as a remedy in subacute and chronic bronchial catarrh.

Osmate of Potassium ($K_2O_2O_2\cdot 2H_2O$), is a salt of osmium, used in place of osmic acid, by hypodermic injections, for the relief of peripheral neuralgias and rheumatic sciatica. A 1-per-cent. aqueous solution is employed. The salt has also proved serviceable as a remedy for epilepsy.

Piperonal, an aldehyde corresponding to piperonic acid, is obtained by the oxidation of piperine. It forms small, white, prismatic scales, having an odor of heliotrope, in consequence of which it is sold under the name of heliotropin. It melts at 125° Fahr., and volatilizes completely at a higher temperature. It is insoluble in cold water. In hot water it melts to a condition of oily drops. Ether and alcohol dissolve it readily. It has some power of reducing the temperature of fever in doses of fifteen grains every two to four hours, but its chief value is as an antiseptic.

Rubus Chamæorus, or cloud-berries, is a Russian peasant-remedy for increasing the flow of urine, which has lately received scientific attention. Its virtues are imparted to water or alcohol, and its effect on the kidneys does not appear to be attended with increased arterial pressure.

Saccharinates of quinine, strychnine, and other bitter alkaloids—made with the sweet principle derived from coal-tar by Dr. C. Fahlberg—are said to be palatable salts. Saccharin is chemically anhydro-ortho-sulphamine-benzoic acid. Its salt with quinine would be sulphamin-benzoate of quinine, or, for the sake of brevity, saccharinate of quinine (not saccharate, which is quite another thing). The sub-

stance is protected by patent. Saccharin itself has been proposed as a substitute for sugar in sweetening the food of diabetic patients.

Safrol is the stearoptene of oil of sassafras, and contains the real aromatic principle of the oil. It is colorless, boils at 449° Fahr., and congeals at a moderately cool temperature; sp. g. 1·108.

Salol, a newly derived antiseptic and antipyretic, is a phenyl ether of salicylic acid ($\text{HC}_6\text{H}_4\text{O}_2$). It seems to be superior to salicylic acid and its salts as a remedy for rheumatism, in its greater power of preventing endocarditis, and its freedom from secondary effects. It is a white, crystalline powder, of feeble aromatic odor (somewhat like wintergreen), and almost tasteless. Its rhombic crystals melt at 42° C. to a clear, colorless liquid. Its tastelessness is presumed to be owing to its insolubility in water; alcohol, benzol, and ether, however, dissolve it readily. It may be given up to two drachms daily without bad effects. It is supposed that salol undergoes no change in the stomach, but is acted upon by the pancreatic secretion and decomposed. It renders the urine blackish in color, owing to presence of oxidation products of phenol. Its use externally prevents the development of, but does not destroy, bacteria.

Santonate of Atropine is said by a German physician to be the best salt of atropine to use for ophthalmic purposes, owing to its freedom from liability to cause irritation or of its solutions to contain fungoid growths. It is a white, amorphous, non-hygroscopic powder, which forms dilute solutions with cold water; 0·01 grammie in 20 grammes of water is sufficient to dilate the pupil.

Scopoline, an alkaloid existing in *Scopolia Japonica*, dilates the pupil more rapidly than atropine, and its effects last longer. It does not appear to irritate the conjunctiva and it antagonizes the effects of eserine.

Tsuchiakabe is a recently noticed Japanese drug, consisting of the dried fruit of an orchid indigenous to Japan. It renders water acid and bitter, owing, it is presumed, to the presence of a resin-acid and a glucoside. The Japanese employ a watery extract in urinary diseases, in much the way that copaiba or cubeba are used elsewhere. It is said to be free from disagreeable odor.

DURAND, Asher Brown, an American line-engraver and painter, born in Jefferson village, (now South Orange), N. J., Aug. 21, 1796; died in South Orange, Sept. 17, 1886. He was descended from Huguenot ancestors. In the shop of his father, a watchmaker, he learned to cut ciphers upon spoons, and this employment, with his natural taste for drawing, turned his attention to engraving. His earliest experiments were upon plates hammered out of copper coins, with instruments invented by himself. His first work upon a proper plate was an engraving of a portrait painted upon the lid of a snuff-box. Although entirely without

instruction, he managed to produce a copy esteemed so successful that he decided to adopt engraving as his profession. In 1812 he was apprenticed to Peter Maverick, of New York, at that time a prominent engraver. During his apprenticeship he was chiefly employed in copying English book-engravings for publishers, but, becoming intimate with Samuel Waldo, he received instruction in portraiture and engraved a plate after a painting of a beggar by Waldo. This was exhibited, and proved the beginning of a successful career as a portrait-engraver. Durand's study of books at this time was for the most part confined to the illustrations, and the only academic art education that he received was derived from a brief attendance at the antique class of the old American Academy of Fine Arts, where his self-acquired skill in drawing is said to have



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surpassed that of the director. In 1817 he entered into partnership with Maverick; but this partnership in the monotonous labor of copying English prints and working upon bank-note plates was soon ended by Trumbull's choice of Durand as the engraver of his painting, "The Declaration of Independence." Upon this engraving, made from the miniature portraits in the painter's small picture, Durand worked for three years, receiving \$3,000 in compensation on the publication of the engraving in 1820. This plate, which is still probably the best known of his engraved works, established his reputation as one of the leading American engravers of his time. For fifteen years he was an active and prosperous engraver. He engraved several heads for the "National Portrait Gallery." Baker mentions thirty-two portraits, among which are engravings after paintings of Washington, Monroe,

Madison, John Quincy Adams, Jackson, Jay, Kent, Marshall, De Witt Clinton, and Oliver Wolcott. Durand's portrait of Charles Carroll, after Harding, attracted the surprised attention of many artists and amateurs abroad. But his engraving of "Musidora," after his own design (1825), and his engraving after Vanderlyn's "Ariadne," remain with the "Declaration" the most important examples of his engraved work, much better known to connoisseurs than his portraits or landscapes. It was difficult to persuade foreign amateurs that the "Ariadne" was of American origin. This work, which has been called "the finest example of the nude yet produced in this country," and "equal to any specimen of contemporary European art," closed Durand's career as an engraver. It is not too much to say that he stood then, and until his death, at the head of this profession in America, although the first place in one special branch, landscape, has been generally conceded to the late James Smillie. In 1835, at the age of thirty-nine, Durand abandoned engraving for painting. His ambition for original work in a medium more flexible and forcible than the burin and steel plate, was encouraged by his friend Luman Reed, an early New York collector. Durand's first essays in the new medium were portraits of Kent, Jackson, Gouverneur Kemble, and later, a portrait of Bryant, which, like others, was engraved in part by the painter. From portraiture he turned to figure compositions, usually representing historical subjects, like "Harvey Birch and Washington," "The Capture of André," "The Dance on the Battery," and "The Wrath of Peter Stuyvesant," all popularized in engravings. These subjects, with their landscape backgrounds, brought him nearer the theme that was to engage his best energies as a painter. Several years before, American landscape-painting had begun with Cole, who was followed a few months later by Doughty. When the National Academy of Design was founded, in 1826, both these artists had gained some degree of recognition, and were, like Durand, among the first members. His career as a landscape-painter began later, but the three artists are associated as the first American landscape-painters. Durand's strong love of nature turned him toward landscape in preference to any other branch of art. His earlier landscapes, like the "Morning and Evening of Life" and "Kindred Spirits," had an allegorical significance that was probably due to the influence of Cole. In the latter picture Bryant and Cole were depicted standing upon rocky plateau in the Catskills, "in rapt survey of the glorious scene." Later, Durand gave himself up to the painting of landscapes, from pure love of nature, without any attempt at complex significance. In addition to numerous mountain and forest views in the Catskills and White Mountains, he painted many pastoral scenes. But his favorite subjects were found in the forests, and he will be best remem-

bered as a painter of trees. Durand is a conspicuous figure in the history of American art. He was an artist of remarkable capacity rather than versatility; for he was not only engraver, portrait-painter, and landscape-painter, but successful in each department. Moreover, he was practically self-educated. The advantages deemed essential now were wanting to him, as to most of his contemporaries. He learned engraving by practical experiments, and painting in much the same manner, borrowing hints from books and from other artists, but enjoying no systematic instruction. It was not until 1840 that he went abroad, and for the first time was able to study examples of great art. Like Cole, he was not influenced by the new departure in landscape led by Constable, nor by Turner, nor by the romantic movement headed by Delacroix and Gericault in France, which was followed by Rousseau and the modern French landscape school. Cole is said to have drawn his inspiration from Claude and Salvator Rosa. It is not worth while to trace a foreign influence in Durand's work, which was objective, like Düsseldorf art, and also like much later American painting. Durand's technique was most strongly influenced by his long use of the burin in careful imitation and patient detail. He had an advantage in accurate draughtsmanship, which enabled him to give the lines of a composition with truth; but there were the disadvantages of constraint and of needless attention to minutiae. It may be admitted, however, that few of our artists have drawn trees so intelligently and truly. It has been said that "his practice of studying character in portraiture gave him insight into the individuality of trees, he invested them with a humanity." Durand was hardly an imaginative painter; but to a large extent this personification of trees, if it may be so called, is characteristic of his paintings. His perfect sincerity and genuine love of nature are expressed in his work, and these qualities are entitled to a respect seldom accorded the earlier American painters, by some of their cleverer but less sincere successors. Durand's limitations were inevitable. Yet his earnestness enabled him to translate something of the sentiment of his subjects, and we must remember that his art was peculiarly national, probably the purest representative of the American art of his time. As with many of his contemporaries, his art was somewhat affected by a literary influence, although his love for Bryant and Wordsworth was never so plainly shown in his paintings as Cole's enthusiasm for Bunyan and Scott. Personally, Durand was a man of remarkable nobility, purity, and gentleness. He constantly maintained the dignity of art, as opposed to its degradation for commercial purposes; and the esteem in which he was held by his brother artists was indicated by the offices to which he was chosen in the National Academy. He was a member of the first exhibition committee, filled the office of secretary

for six years, was elected vice-president in 1844, and president in 1845, which office he held until his resignation in 1861. He was one of the first members of the Century Club, as well as of the Academy. Living at his birthplace in New Jersey, Durand continued his landscape-painting until he was over eighty-four years of age, contributing to the Academy irregularly until 1880. In this year he finished perhaps his last picture, a view of Lake George; but even later he found his greatest pleasure in occupying himself with palette and brush in his studio. His death removed the last of the painters that may be justly termed the pioneers in American art. Among Durand's landscapes are "The Forest Primeval"; "The Trysting-Tree," exhibited in 1869, and belonging to Benjamin H. Field; "The Clove, Catskill Mountains," belonging to the Century Club; "Franconia Notch," exhibited in 1874, owned by Mrs. R. L. Stuart; "In the Woods," owned by Jonathan Sturges, which was sent to the Paris Exposition of 1867; "Thanatopsis," owned by J. P. Morgan; "Landscape," owned by Morris K. Jessup; "The Catskills," dated 1859, and owned by W. T. Walters, of Baltimore; and "Berkshire Hills," in the Hurlbut collection at Cleveland. To the Centennial Exhibition at Philadelphia Mr. Durand sent "Studies from Nature," "Il Pappagallo," "Kaaterskill Clove," "A Brook Study," and a portrait of Gouverneur Kemble. In the official report he was spoken of as having "stimulated into activity a feeling for landscape" in American art, and as "extremely sensitive and refined in his rendering of landscape." He was formally commended by the judges for "excellence in engraving." Accounts of Durand's life and works may be found in the "History of the Arts of Design in the United States," by William Dunlap; "Book of the Artists," by H. T. Tuckerman; "American Engravers," by W. S. Baker; "American Painters," by G. W. Sheldon; "Art in America," by S. G. W. Benjamin; "Artists of the Nineteenth Century," by Clara Erskine Clement and Laurence Hutton; and "Cyclopædia of Painters and Paintings," by John D. Champlin, Jr.

DYNAGRAPH. (*Greek δύναμις, strength, and γράφη, a writing*). In its practical application the dynagraph is an instrument for automatically recording the condition of a railway-track. There is only one such instrument in existence—the invention of P. H. Dudley, C. E., and it has satisfactorily reported upon most of the principal railroad lines of the United States. The dynagraph is mounted in a private car fifty feet long, specially constructed for the purpose, with long six-wheel trucks. The after-half of the car is a work-room containing the dynagraph and the various tables, desks, and appliances requisite for supplementing its automatic record. The forward end is fitted for permanent quarters, and there Mr. and Mrs. Dudley have made their home, ever since the dynagraph was finished and put in

working order. This compact little domestic establishment is very interesting, aside from the scientific and mechanical importance of the adjoining workshop. In its exterior appearance as well as in its interior arrangements the car is in strong contrast to the gorgeous palaces on wheels of the great railway magnates. It is eminently utilitarian in all its details. Space is everywhere economized, and ingenious contrivances for saving time and grafting household duties upon the inexorable demands of the dynagraph are a study in themselves. Mrs. Dudley is a musician, and her piano is the most bulky article of furniture. It is, as it were, built into the car itself, having been taken out of its case and carried in before the partitions were put up. Underneath are chests of drawers and lockers, and overhead and on every side are appliances for the storage of clothing and household supplies. The kitchen and dining-room are in one compartment occupying the full width of the car, and fitted with a tiny cooking-range, while the necessary culinary utensils are packed with intelligent ingenuity where they can be easily reached, and are yet out of the way. Every-

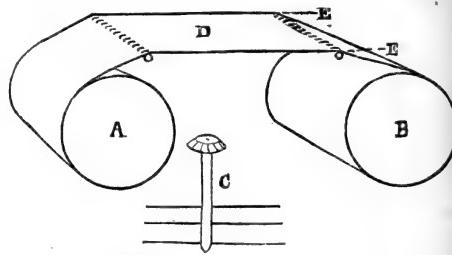


FIG. 1.—THE DYNAGRAPH.

thing is necessarily fitted so as to endure without damage the perpetual shocks and jars incident to this peculiar home. Mrs. Dudley acts as an efficient assistant to her husband when the dynagraph is on duty, and is nearly as familiar as he with its working details. Mr. Dudley is a photographer and a chemist as well as a mechanical engineer, and his office and work-room is, if anything, a greater marvel in its way than the domestic half of the establishment. It occupies the rear end of the car, so that the observer can watch the performance of the dynagraph, and, if necessary, glance through the rear windows at the track itself, if the automatic record indicates anything unusual. Fig. 1 shows the principle on which the dynagraph is constructed. Details are omitted because it is impossible to make them clear without reference to a working model. A and B are two drums, A carrying a roll of paper 1,350 feet long and 30 inches wide. The two drums are connected with the axle of a pair of truck-wheels by means of a vertical shaft, C, the connections being made in the usual way by cogged-wheels, caus-

ing the paper drums to revolve so that B receives the paper as fast as A delivers it. A tension-regulating apparatus causes the paper to pass smoothly and evenly across the space marked D, which is, in fact, the recording-table. Above this table is a series of pens, some delivering red ink, some black, and some blue. These in turn are connected with an elaborate system of mechanism leading to the rails over which the car passes. Small steel rollers bear upon the sides of the rails and upon their upper surfaces, and act so uniformly that the slightest deviation from the normal adjustment is recorded upon the moving sheet of paper in the car. A separate device is required to take the dynamometrical curve of the moving train. A draw-bar is mounted over the paper and connects by ingenious mechanical appliances with a fluid-chamber attached to the framework of the car. Any pressure against the draw-bar is communicated to the pen that traces the dynamometrical curve. It is impossible intelligibly to describe, even with the aid of diagrams, all the intricate yet simple mechanism that secures the results shown in Fig. 2, which represents a cross-section of paper after it has passed under the recording-pens. A list of the work done as the car passes along at the rate of twenty miles an hour will give a better idea of its practical utility than any attempt at detailed description: 1. Alignment of rails (approximate); 2, gauge of track; 3, degree of curvature and general alignment of the line; 4, deflections and irregularities of all kinds in the rails; 5, elevation of the outer rail in curves; 6, gradients; 7, oscillation of car-body; 8, exact distance run; 9, time-marks in seconds; 10, dynamometrical curves (the ordinates of the curves and the foot-pounds of work can be calculated from these data). In addition to these records there is an attachment that automatically discharges a small quantity of paint against the side of the rail wherever a fault occurs of sufficient importance to require attention. This enables the trackmen to see at a glance where their services are needed, so that they do not have to stop and examine every joint separately. An operation involving the wearisome task of stooping to inspect the rails on both sides wherever the joints show signs of wear.

When the dynagraph is in operation the paper, instead of being delivered directly upon the second drum, is carried over a long table fixed in the center of the car (see dotted lines E E, Fig. 1), so that the observer can have plenty of time to watch the record and make memoranda for future reference as the work progresses. Practice has cultivated the inventor's skill to such a degree that he can often tell the special

make of the rails over which the car is passing, and, standing beside the instrument he reads the story told by the different lines as readily as if they formed words and sentences. One inch of the paper may represent 50 feet, or 100 feet, or 200 feet of track, according to the necessities of the case. The 50-foot gauge is always used for track-inspection, and in that case 8' 8 feet of paper represent one mile of track.

The first dynagraph was made in 1874, and was used on the Valley Railroad of Ohio from 1875 till 1878, when the present machine was

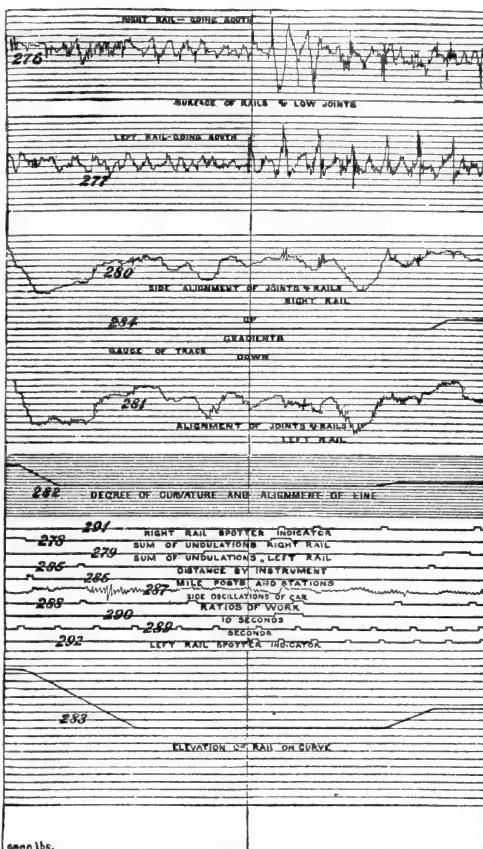


FIG. 2.

built. With the first instrument, which carried paper only 11 inches wide, many experiments were tried; and the value of the idea was fully demonstrated. A long series of observations was necessary, however, before the instrument approximated its present remarkable accuracy. The data furnished by the dynagraph have enabled the management of the roads using it to effect material saving in running expenses, and in wear and tear; for nothing consumes more mechanical energy than an uneven track.

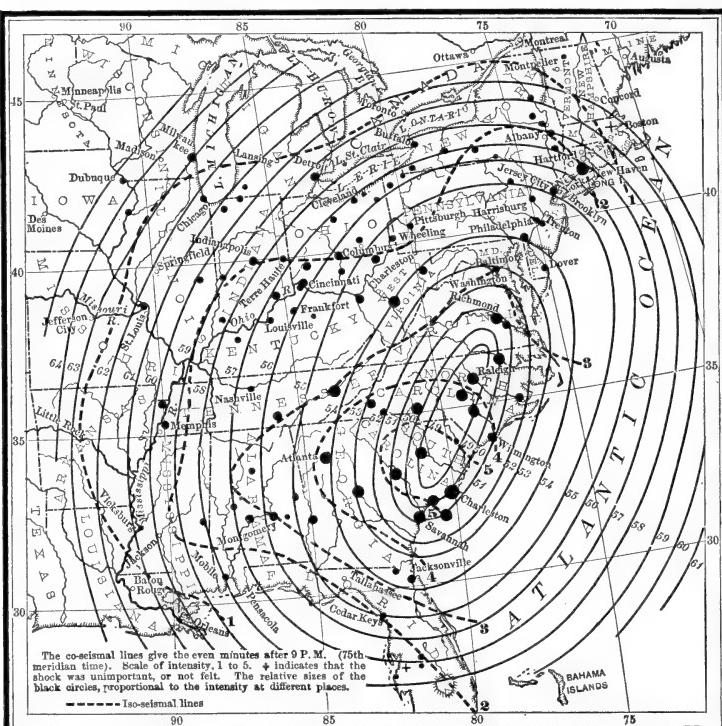
EARTHQUAKES IN THE UNITED STATES. The recent shocks of earthquake have directed attention to previous seismic disturbances, and more particularly to those that have shaken the territory of the United States. The Indians had traditions of prehistoric earthquakes; and the list, which begins soon after the landing of the Pilgrims is longer than is popularly supposed. Several shocks are recorded in the early histories and in the "Transactions" and "Memoirs" of the various scientific and philo-

man (1729), vol. xxxvi, p. 124. Prof. Williams brought the record to the close of the eighteenth century. The principal seismic disturbances are summarized in the following account:

The earthquake of June 1, 1638, O. S., was the first that occurred after the landing of the Pilgrims. It is said to have been preceded by a rumbling noise like remote thunder, growing continually louder and drawing nearer. Then the earth began to quake until the shock threw down the pewter from the shelves, toppled over stone walls, and shook off the tops of chimneys. In some places it was difficult for people to remain standing. The course was from northwest to southeast, and it was observed by the Indians beyond any of the English settlements. A second shock, not so strong, followed the first after an interval of half an hour. The duration of this earthquake is very uncertain. Winthrop says it occurred "between three and four in the afternoon."

In 1642, about seven o'clock of Sunday, March 5, another very perceptible trembling of the earth was noticed, but it did no damage.

On Oct. 29, 1653, a little earthquake gave the divines of that day a theme for ponderous sermons, and in 1658 the earth again trembled. Of this Prof. Williams says, "In all ancient histories this is mentioned as a great earthquake, but I can not find



MAP SHOWING EXTENT OF EARTHQUAKE SHOCKS.

sophical societies at home and abroad. The most complete account is that read before the Academy of Arts and Sciences in Boston, in 1783, by Prof. Samuel Williams, LL. D., of Cambridge, Mass. It is printed in vol. i, p. 262, of the "Memoirs" of that association. The curious reader may be referred also to the communications of Mr. Paul Dudley (1735) in vol. xxxix of "Transactions of the Royal Society," p. 63; of Rev. Mr. Plant (1742), vol. xlii, p. 33; of John Hyde, Cadwallader Colden, and Peter Collinson, Esqrs. (1756), vol. xlxi, pp. 439-444; of Prof. Winthrop, of Cambridge (1757), vol. i, p. 1; and of Mr. Benjamin Cole-

any account of the month, day, violence, cause, effects, extent, or any other particulars of it."

On Jan. 26, 1663, O. S., "at the shutting in of the evening," there was an earthquake, with shocks at intervals during three days, Jan. 26, 27, and 28. It was preceded by a great roaring noise, and the first shock came about seven o'clock in the evening. The houses rocked violently, dishes were thrown from the shelves, walls were cracked, and the tops of chimneys were broken off. Men, women, and children ran out into the streets and open places, and passengers staggered to and fro like men on the deck of a tossing vessel. In Canada the effect of this earthquake was severe indeed. An old narrative thus tells of its occurrence: "About half an hour after five in the evening, a most terrible earthquake began. The heavens being serene, there was suddenly heard a roar like the noise of a



CHART OF THE WORLD Showing the PRINCIPAL VOLCANOES, SEISMIC AREAS AND CORAL REEFS; Also the Regions of ELEVATION AND SUBSIDENCE OF THE LAND SURFACE.

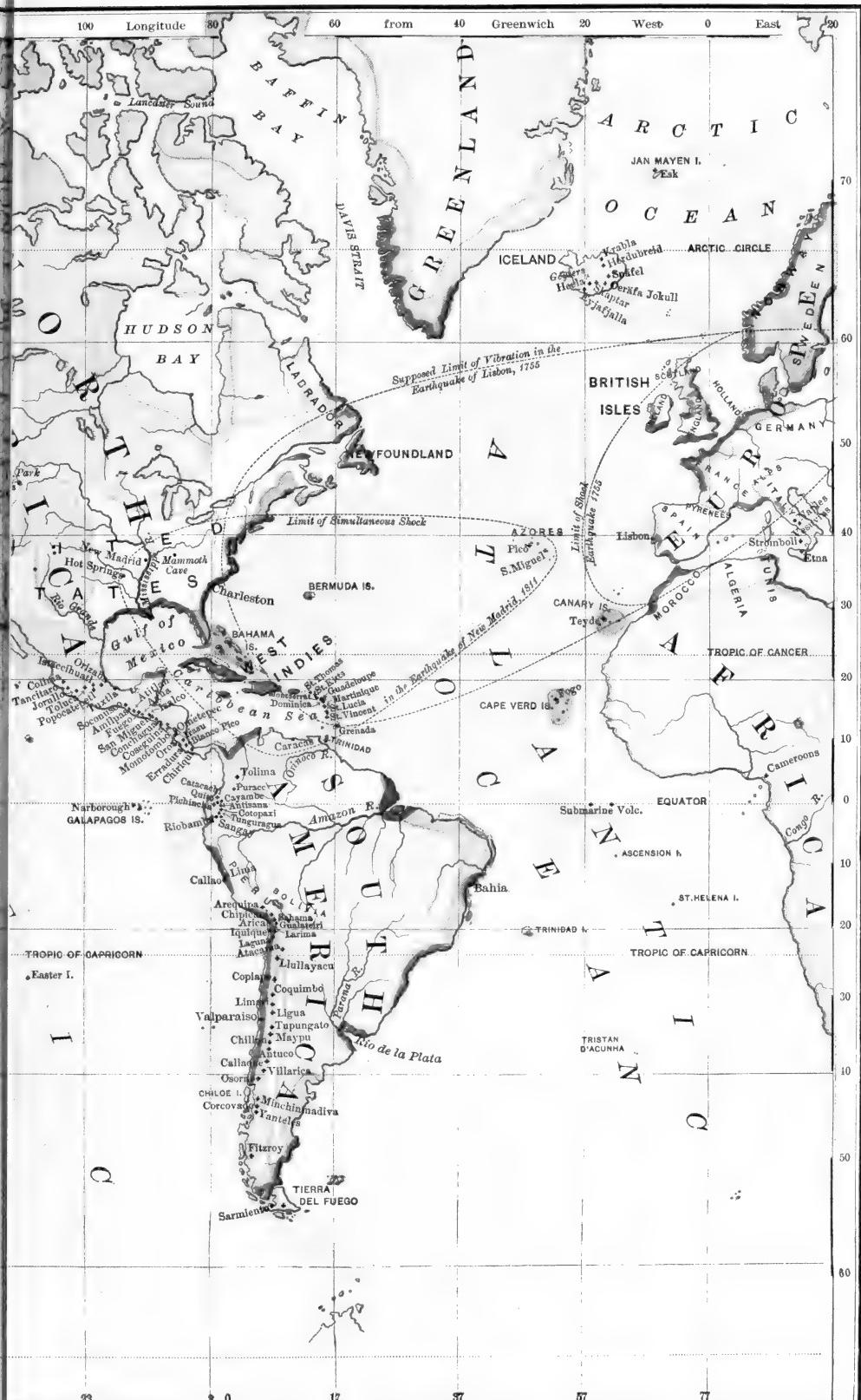
Purple indicates Regions of Elevation now proceeding.
Green " " " Subsidence " "
Red " " Seismic Areas.

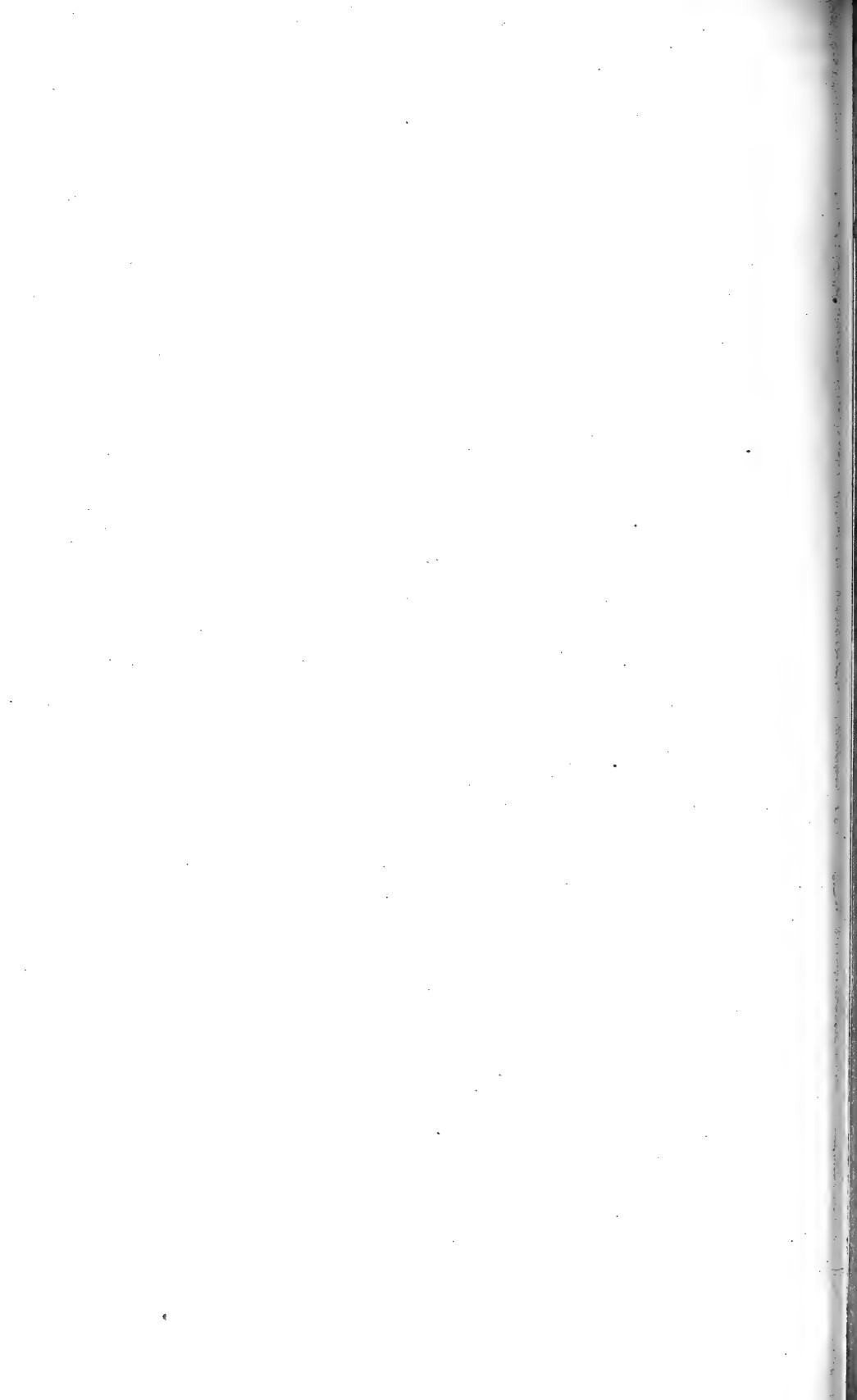
The deeper color shows Areas of more frequent and intense disturbance.

- + Active Volcanoes, or presumed such within historic periods.
- Extinct Volcanoes.

Coral Reefs







great fire. Immediately the buildings were shaken with amazing violence. Doors opened and shut of themselves with a fearful clattering. The bells rang without their ropes being touched. Cracks appeared in the walls of buildings, and floors separated, and in some cases fell down. Chasms appeared in the fields, and the hills seemed to be in motion. The fright of the inhabitants was shared by the beasts and birds, who sent forth fearful cries, howlings, and bellowings. The duration of this earthquake was very uncommon. The first shock continued half an hour before it was over, but it began to abate about a quarter of an hour after it began. The same day, about eight o'clock in the evening, there came a second shock, equally violent as the first, and in the space of half an hour there were two others. The next day, about three hours from the morning, there was a violent shock, which lasted a long time, and the next night some counted thirty-two shocks, of which many were violent. Nor did the trembling of the earth cease until the July following. Many trees were torn up, and the outlines of the mountains appeared to be much changed. Many springs and small streams were dried up; in others the waters became sulphurous, and the channels in which some had run were so altered as to be unrecognizable. Halfway between Tadousac and Quebec two hills were thrown down, and formed a point of land, which extended half a quarter of a league into the St. Lawrence river. The island Aux Coudres became larger than it was before, and the channel of the St. Lawrence was greatly changed.

This earthquake extended to New York and Pennsylvania. There were slight earthquake-shocks in 1665, 1668, 1669, 1670, 1703, and 1720.

Sixty-four years after the earthquake that so frightened our ancestors and their Canadian neighbors, came another memorable shock. On Oct. 29, 1727, O. S., about 10.40 p. m., the air being clear and the sky serene, a heavy, rumbling noise was heard in the north or northwest. At first it seemed to be at a distance; but it increased until it was thought to be the roar of a blazing chimney near at hand, and at last was likened to the rattling of carriages driven fiercely over pavements. In about half a minute from the time the noise was first heard the earthquake was felt. It was observed by those who were abroad that as the shake passed under them the surface of the earth perceptibly rose and then sank; but, as it was late on Sunday night, there were probably not many travelers out-of-doors. The violence of the shock was such as to cause the houses to tremble and rock, as if about to fall to pieces. Doors, windows, and movable furniture made a fearful clatter. Loose articles, china, and pewter were pitched from the shelves; stone walls and the tops of chimneys were thrown down. There were various opinions as to the duration of this earthquake. The most probable is that the shake began about half a minute after the roar was first heard, and rose to the greatest violence in about a minute more. Its course, like that of the previous ones, seems to have been from northwest to southeast. It extended from the river Delaware, in Pennsylvania, to the Kennebec, in Maine, being perceptibly felt in both places, though the shock there was slight. It was also felt by vessels at sea. The place of greatest violence seems to have been at the town of Newbury, on Merrimac river. There the earth opened and cast up a quantity of sand and ashes mixed with sulphur. A correspondent of the Royal Society, in a communication relative to this earthquake, says, "A clergyman in a town about twenty miles from Boston assured me that immediately after the earthquake there was such a stink that the family could scarce bear to be in the house for a considerable time that night."

Concerning the earth that was thrown up, another clergyman, Rev. Mr. Lowell, writes: "About the middle of April (1728) the fine sand that was thrown up in several places in this parish at the first great shock, October 29, had a very offensive stench—nay, was more nauseous than a putrefying corpse; yet, in

a very little while after, it had no smell at all. How long it was before it began to have this stench I am not certain, but I believe it was covered with snow until a little while before."

Rev. Mr. Allin, then minister of Brookline, Mass., took notice of an uncommon change in the water of some wells. "About three days before the earthquake," he says, "there was perceived an ill-stinking smell in the water of several wells. Some searched their wells, but found nothing that might thus affect them. The scent was so strong and offensive that for eight or ten days they entirely omitted using it. In the deepest of these wells, which was about thirty-six feet, the water was turned to a brimstone-color, but had nothing of the smell, and was thick like puddle-water." Some wells also dried up just before the earthquake, but filled after the shock had passed. Several shocks were felt in the northern part of New England for some months after October 29, but they were generally incon siderable.

On Sept. 5, 1732, at about 11 A. M., there was an earthquake-shock which, though comparatively slight, was of considerable extent. It was strongest in Canada, but was felt in the New England colonies, and from Maryland to Maine.

On Feb. 6, 1737, at 4.30 in the afternoon, and on December 7 of the same year, a little before 11 o'clock at night, slight shocks were felt, but did no damage.

June 3, 1744, was a fair and hot day. At a few minutes after 10 A. M., a very loud noise was heard, followed by a trembling of the earth, which shook down bricks from the tops of chimneys, and ruined many stone walls.

The most violent shock of earthquake that was ever known in New England was in the year 1755. It came November 18, at eleven minutes and thirty-five seconds after four o'clock in the morning of a calm, clear night. The beginning of this earthquake was determined with all the exactness that could be required, by a curious accident. Prof. Winthrop, of Cambridge, having, some time before, used an unusually long glass tube in a particular experiment, shut it up in the case of his tall clock for greater security against breakage. This tube, standing nearly perpendicular, was upset by the first motion of the shock, and, falling against the pendulum, instantly stopped the clock at the time mentioned. The clock had been adjusted by a meridian line the preceding noon. Prof. Winthrop was awoken by the earthquake, but his bed was tossing so alarmingly, and the floor of his room shaking so violently, that he did not deem it prudent to walk to the fireplace until the shock was abating. Having then struck a light, he looked at his watch, which had agreed with the clock when he had retired, and found it to be fifteen minutes after four. The jarring was perceptible for about a minute after this, so that the total duration of the earthquake was nearly four and a half minutes. The shock was preceded by that peculiar rumbling noise or roar which frequently is the precursor of an earthquake. In about half a minute afterward the surface of the earth seemed to be suddenly raised, and, in subsiding, was thrown into a rapid, jarring, vibratory motion, which acted in a horizontal direction. This motion continued for about a quarter of a minute, and then abated for three or four seconds. Then all at once came a "violent, prodigious shock, as suddenly, to all appearance, as a thunder-clap breaking upon a house, and attended by a great noise." This severe and sudden shock was immediately succeeded by quick and violent concussions, jerks, and wrenches, attended by an undulatory, waving motion of the whole surface of the ground, not unlike the shaking and quaking of a large bog. For nearly half a minute it gradually declined, and then there was a perceptible revival of it, though of short continuance, and so, by degrees, all became quiet again.

The effect of these throes of Mother Earth upon the people of Boston is vividly told by several writers. Upon the first shock many persons jumped out of

their beds and ran into the streets; some lay between the sheets, afraid to rise; others sprang to the windows, and seeing in the dim light, that was almost darkness, their friends and neighbors naked, shrieked aloud with the apprehension that the day of judgment had arrived. Others yet thought they heard, among the varied noises, the trumpet of Gabriel sounding, and fell upon their knees and cried out for mercy; some fainted away for fright, and those of the most composed temper expected to be buried beneath the ruins of their houses. Children, waked from their sleep, ran crying to their frightened parents; the dogs howled dismaly; birds flew into the air with frightened cries, and cattle that were in the fields fled belowing to the barns and sheds. In Boston about 100 chimneys were leveled to the roofs of the houses, in some cases breaking through the roof-beams. About 1,500 were shattered and thrown down in part. Some were broken off several feet below the top, and some, by the suddenness and violence of the shock, were canted an inch or more from the perpendicular. Still others were twisted awry, as if by a circular motion. Many clocks were stopped. The vane on the public market-house was thrown down—the wooden spindle that supported it being broken off at a place where it was five inches in diameter; yet it had withstood the most violent gusts of wind. A new vane on one of the churches was bent at the spindle, and a distiller's cistern, made of plank, almost new and very strongly put together, was burst in pieces by the agitation of the liquor in it. Similar results were observable in the country. At Springfield a metal spindle on one of the churches was bent to a right angle. Through the whole province of Massachusetts, stone fences, cellar-walls, chimneys, and the like were cracked and thrown down. Great alterations were observed in the springs and ponds. In some the quality of the water was changed; in others, the quantity. New springs were opened, and old ones dried up. At Pembroke, Scituate, and Lancaster chasms were made in the earth (at Pembroke there were four or five of them), from which water issued and fine, white sand, or powdered ashes, were vomited. Almost immediately after the earthquake numbers of fish came to the surface of the ocean, dead or dying. One fishing-vessel brought in several quintals of these fish. This earthquake was traced a great distance. On the southwest it reached as far as Chesapeake Bay, being, however, felt on the easterly and not on the westerly side. At the northeast it was felt as far as Halifax. It was perceived at Lake George, but at Oswego, in New York, it was not felt at all. On the ocean the shock was so great that the mariners on board of a vessel seventy leagues from Cape Ann thought they had run aground or struck a rock, until, on sounding, they found they were in more than fifty fathoms of water.

Nine hours after the great shock was felt in New England an extraordinary motion of the sea happened in the harbor of St. Martin's, in the West Indies. The sea withdrew, leaving places where there was commonly at least five feet of water dry; and then, returning, it rose six feet above the ordinary level.

On November 22, at 7.27 at night, and on December 19 at 10 p. m., in the same year (1755), there were two light shocks.

Another shock, that was generally felt, came on the 8th of July, 1757, at 2.20 p. m.

In 1761, March 12, at about 2.30 a. m., an earthquake-shock was distinctly felt in New England; and there was a second one about 8 p. m. on November 1 of the same year.

In 1766, 1769, and 1771 there were slight tremblings of the earth.

At about 11 o'clock on Nov. 29, 1783, a small earthquake shook New England and the Middle States. At Boston, at Hartford, and at New Haven but one shock was felt, but there were three in New York, and at Philadelphia there were two, the first of which was the stronger.

In Silliman's "Journal of Science" a few of the

earthquakes felt in the region of East Haddam are mentioned. Two shocks, which followed each other in quick succession on May 16, 1791, seem to have been quite severe. The first was the most forcible, and walls and chimneys were broken and cracked, doors were unlatched, and a fissure several rods in extent opened in the ground. Thirty lighter shocks followed, and about one hundred were felt during the night and the next day.

On Aug. 28, 1792, at 10 p. m., and on October 24 in the same year, at 1 a. m., shocks were perceived; so, also, on January 11, and July 6, 1793, and on March 9, 1794.

There were slight shocks on May 8, 1804, and on August 11 and December 30, in 1805, but they excited little comment.

A slight trembling was felt on Nov. 9, 1810.

Prof. Williams was succeeded, as the historiographer of American earthquakes, by the Hon. Samuel L. Mitchill, who, in 1814, compiled an exhaustive account of the earthquakes of 1811, 1812, and 1813. (See "Transactions of the Literary and Philosophical Society of New York," vol. i, p. 281.) The year 1811 was noted for its beautiful comet, for the furious tempest that swept the entire Atlantic coast, and for its tremendous earthquake. On Monday morning, Dec. 16, 1811, was felt the most general seismic disturbance ever known on this continent. Mr. Mitchill gives accounts of the shocks at Washington, D. C.; Richmond and Norfolk, Va.; Raleigh, N. C.; Georgetown, Columbia, Charleston, and Pineville, S. C.; Savannah, Ga.; Natchez, Miss.; Knoxville, Tenn.; Louisville, Ky.; Jeffersonville, Ind.; Detroit, Mich.; St. Louis, Mo.; and New Orleans, La.; and from Philadelphia, Baltimore, New York, and many other places. This earthquake was remarkable for its violence, its extent, and its continuance. The Mississippi and Ohio valleys were visited by shocks at frequent intervals during 1812 and 1813. Dr. Robertson, who, by order of the Government, in 1806, traveled to the sources of Arkansas river, witnessed these shocks at St. Genevieve, Mo., and kept a memorandum of their number until five hundred had been recorded, when he grew weary of the task and ceased to note any more. The Indians said the shocks were very frequent and violent far westward beyond civilization. The center of disturbance was apparently near New Madrid, Mo. The following account, dated Dec. 25, 1811, was written by William Leigh Pierce, and is mentioned by Mr. Mitchill as worthy of credence. In considering the phenomena that it details, the reader should remember the condition of civilization in the region affected. There were few structures of brick or stone, the dwellings were almost invariably constructed of logs, and even in New Orleans the buildings were mostly small and insignificant. Mr. Pierce was going in a flat-boat from Pittsburg to New Orleans. He left the Ohio and entered the Mississippi on Friday, Dec. 13, 1811, and on the evening of the 15th (Sunday night) tied up at the left bank, about 116 miles from the mouth of the Ohio. His

boat was one of a considerable fleet. The night was extremely dark and cloudy; not a star appeared in the heavens, and there was every indication of a severe rain. "Precisely at two o'clock on Monday morning," says Mr. Pierce, "we were all alarmed by the violent and convulsive agitation of the boats, accompanied by a noise similar to that which would have been produced by running over a sand-bar. Every man was immediately aroused, and rushed upon deck. The first shock was followed by a second, and then by two others in immediate succession, accompanied by continuous and tremendous explosions resembling a discharge of artillery. These continued for eight minutes. So complete and general had been the convulsions that a tremulous motion was communicated to the very leaves on the surface of the earth. A few yards from the spot where we lay, the body of a large oak was snapped in two, and the falling part precipitated to the margin of the river; the trees of the forest shook like rushes; the alarming clattering of their branches may be compared to the effect that would be produced by a severe wind passing through a large cane-brake. At dawn of day I went on shore to examine the effects of the shocks; the earth about twenty feet from the water's edge was deeply cracked, but no great injury was visible; fearing, however, to remain longer where we were, we thought it advisable to leave our landing as expeditiously as possible. This was immediately done. At a few rods from the shore we experienced a fifth shock of such strength that the bank to which we had been attached was rent and fell into the river; while the trees rushed from the forests and precipitated themselves into the water with force sufficient to have dashed us into a thousand atoms. Wherever the veins of the earthquake ran there was a volcanic discharge of combustible matter to great heights, an incessant rumbling was heard below, and the bed of the river was excessively agitated, while the water assumed a turbid and boiling appearance. Near our boat a spout of confined air, breaking its way through the waters, burst forth, and with a loud report discharged mud, sticks, etc., from the river's bed at least thirty feet above the surface. These sputtings were frequent, and in many places appeared to reach to the very heavens. Large trees, which had lain for ages at the bottom of the river, were shot up in thousands of instances, some with their roots uppermost and their tops planted; others were hurled into the air; many again were only loosened, and floated upon the surface. Never was a scene more replete with terrific threatenings of death. The earth and river, torn with furious convulsions, opened in huge trenches, whose deep jaws were instantaneously closed. Through a thousand vents, sulphureous streams gushed forth, leaving vast and unfathomable caverns. During the day there was, with very little intermission, a continued series of shocks, attended with innumerable explosions, like the rolling of thun-

der. Banks, with all their growth, fell into the river, whose bed was incessantly disturbed. The oldest trees of the forest quivered with the violence of the shocks, while their heads were whipped together with a quick and rapid motion. Several small islands have already been annihilated, and from appearances many others must suffer the same fate. To one of these I ventured in a skiff, but it was impossible to examine it, for the ground sank from my tread, and the least force applied to any part of it seemed to shake the whole. Anxious to obtain a landing, and dreading the high banks, we made fast to some willows on a sunken piece of land at the extremity of an island, and continued there for two days, hoping that the scene of horrors would be over; still, however, the shocks continued, though not with like frequency as before. On Wednesday afternoon I visited every part of the island where we lay. It was extensive and partially covered with willow. The earthquake had rent the ground in large and numerous gaps; vast quantities of coal and charred wood were spread over the ground. I saw several places where those spouts which had so much attracted our wonder had arisen; they were generally on the beach, and had left large circular holes in the sand, formed much like a funnel. For a great distance around the orifice vast quantities of coal had been scattered. Many pieces weighing from 15 to 20 pounds were discharged 160 measured paces. One of these holes was 16 feet in perpendicular depth and 63 feet in diameter at the mouth. On Thursday morning we loosened our cables. As we descended the river, we saw subterranean forests, which raised their heads, hard and black as ebony, above the surface of the water. We passed also thousands of acres of land which had been cleft from the main shore and tumbled into the water, leaving the tops of the trees waving above the surface. At Fort Pickering, 242 miles from the mouth of the Ohio, the land is strong and high. Here, however, the earth was extremely agitated, and the block-house, which was almost a solid mass of hewed timber trembled like an aspen-leaf. Many poor fellows were undoubtedly wrecked or buried under the banks; and many boats were lost."

Mr. Pierce was not the only one that was alarmed. At Charleston, S. C., a severe shock was felt a few minutes before 3 A. M. A noise like distant thunder was heard at intervals. St. Philip's steeple vibrated so that the clock-bell rang for ten seconds. Clocks were stopped; houses were shaken, and articles suspended from the ceilings and walls swung to and fro. People were awakened, and left their beds in terror.

Earthquake-shocks continued to be felt during the year 1812 throughout the valleys of the Mississippi and its tributaries. Audubon, the naturalist, has left in his "Ornithological Biography" an account of shocks that

he felt in November, 1812, and shortly after that date. It is interesting to speculate what would have been the result had there been, in the regions most affected by these earthquakes, houses of stone or brick. The log-houses were well calculated to withstand injury, and it may be said that the principal relic of the earthquake exists to-day in that vast tract of country south of New Madrid, known as "The sunk country."

No special record was kept of the earthquakes that followed the disturbances of 1811-'12 until Mr. Rockwood, in 1872, published his notes in the "American Journal of Science and Arts." A list of the earthquake-shocks in the interim has, however, been collected from the newspapers.

On Feb. 15, 1815, two smart shocks were felt at Weston, Mass. Many of the inhabitants were greatly alarmed, for the shocks came at night, and the next day fissures or cracks were discovered in the earth, extending to a great distance and branching in various directions.

On Sept. 14, 1816, two considerable shocks were felt at New Madrid, Mo. On Nov. 9 of the same year two shocks were experienced at Pittsfield, Mass. Smart shocks were felt in all the towns in the upper part of South Carolina and Georgia about 11 p. m., Dec. 10, 1817. Shocks were felt in Alabama on Aug. 22, 1824; in the Mississippi Valley, May 7, 1836, Jan. 30, 1840, and June 2, 1840; in Connecticut, Aug. 9, 1840; in New Jersey, Aug. 12, 1843; in Washington and Baltimore, Feb. 8, 1843; in South Carolina and the valleys of the Mississippi and Ohio, Jan. 4, 1843; in Massachusetts, Nov. 24, 1843; in the Mississippi valley, Aug. 18, 1843; in New Jersey, Jan. 28, 1844; in New York, Oct. 22, 1844; in Tennessee, Dec. 25, 1845; in New York, Oct. 26, 1845, and Feb. 4, 1846; in New England, Aug. 25, 1846, and June 8, 1847; and in New York and New England, Sept. 8, 1848. None of these were so violent as to do serious damage; but the list shows that the crust of the earth has seldom been quiet for any considerable length of time.

The Pacific coast, ever since its settlement, has been subject to violent seismic disturbances. Three recent earthquakes—in 1865, 1868, and 1872—were specially destructive of property and life.

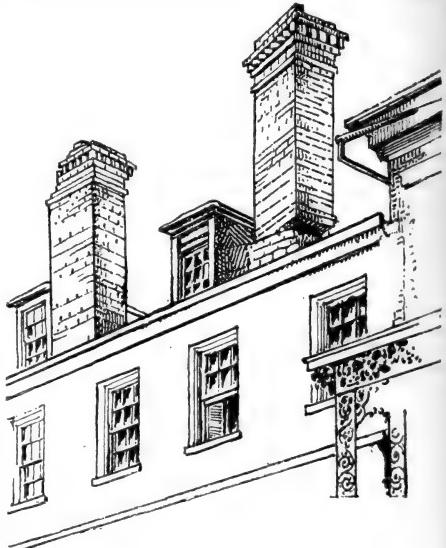
The Charleston Earthquake.—On the night of Aug. 31, 1886, an earthquake-shock was felt over a wide extent of country, was especially severe in South Carolina, and wrought such havoc in the city of Charleston that it is known as the Charleston earthquake. The following are the times (in hours, minutes, and seconds) at which it was felt in various localities: Charleston, S. C., 9.51; Washington, D. C., 9.53.30; Baltimore, Md., 9.54; New York, 9.54; New Haven, Conn., 9.55.30; Toronto, Can., 9.55; Newport, Ky., 9.54.15; Portsmouth, Ohio, 9.55.57; Dubuque, Iowa, 9.58; Jacksonville, Fla., 9.54. It is impossible

to give an exact account of the damage done by this earthquake in Charleston. It has been estimated that the loss in buildings that were shaken down or rendered unsafe will amount



RUINED GABLE, IN CHARLESTON.

to more than \$5,000,000. Appeals for aid were made, and every large city responded. Many persons were killed by objects thrown down by the shock; but many more died from the exposure that followed, for the people



CHIMNEY DISPLACED BY TORSION, IN CHARLESTON.

were so frightened, and in many instances the buildings were so unsafe, that the inhabitants camped out in the public parks and other open spaces for several days. The alarm was perpetuated by the continuance of the shocks,

which have been felt at frequent intervals up to the time of the writing of this article. The city of Charleston seems to have been near the center of disturbance, although the greater portion of South Carolina was severely shaken. The accompanying illustrations will serve as specimens of the damage done.

It is only of recent years that any pretense has been made of keeping a correct record of every shock, and it is, therefore, almost impossible to say whether earthquakes are increasing in frequency. The table is believed to be the most complete yet published.

Causes.—Seismology, the science of earth-



HOUSE IN LINCOLNVILLE, S. C. CHIMNEY-BASE CRUSHED BY UPWARD MOVEMENT OF THE EARTH.

On Aug. 10, 1884, a strong earthquake occurred in New England and the Middle States. The center of intensity seems to have been at Jamaica and Amityville, on Long Island. At Jamaica the walls of the Presbyterian Sunday-school were cracked in two places, the openings being from one to two inches in width and extending from roof to foundation. In a house at Amityville a large mirror, reaching from the ceiling to the floor, was cracked from top to bottom, and the walls of the room were cracked in two places; a broom-handle could be laid in the cracks in the wall.

The following table has been compiled from the records of Prof. Rockwell, as reported in the "American Journal of Science and Arts":

quakes, is still in its infancy. Mr. Mitchell says: "When engaged in the task of collecting these curious and interesting phenomena, I was in expectation that physical occurrences, so immediately before our eyes and under our feet, would have qualified me to form something like a tolerable theory of earthquakes. I must own, however, that, after all the information I have collected, I have not been enabled to offer a solution by any means satisfactory to myself." Several hypotheses have been invented to explain the phenomena of earthquakes, and the advocates of each find arguments to support those they favor, in the various conditions of earth, air, water, and the celestial bodies at the time of the seismic disturbance. It has been attempted by some scientists to draw distinctions between earthquakes, earth-oscillations, earth-tremors, and earth-pulsations. Briefly stated, the theories may be said to be six:

1. The theological theory, held by an immense number of people, who believe that the earthquake is due to the direct intervention of God, as a punishment for sin or a warning to righteousness. This theory is of the greatest antiquity.

2. The mechanical theory, which imputes the earthquake to the slipping of rock strata, and lays especial stress upon the earth's falling

YEARS.	New Eng-land.	Atlantic States.	Mississippi Valley.	Pacific States.
1872.....	2	3	5	8
1873.....	6	5	5	11
1874.....	6	4	2	8
1875.....	7	3	6	17
1876.....	4	6	4	6
1877.....	3	7	8	15
1878.....	1	6	3	19
1879.....	3	4	4	8
1880.....	7	3	1	18
1881.....	14	3	5	30
1882.....	5	6	11	19
1883.....	8	2	11	23
1884.....	9	5	7	21
1885.....	5	9	3	34

in some places, rising in others, and being agitated everywhere.

3. The volcanic theory, which holds that the disturbances are due to fires in the earth's center, and to their fumes and steam, which force an outlet. In the hot water, steam, and gas ejected, and in the odors imparted to springs and wells, they find evidence of the truth of their theories.

4. The astronomical theory, which holds that the cause is to be found in the attraction of the planets, derives argument from the enormous weight of extraordinary tides, and claims that the attraction of the sun and the moon operates on the crust of the earth as it does on the great body of water that it raises or lowers. Much discredit has been cast upon this theory by charlatans who have pretended to foretell earthquakes from the stars.

5. The electrical theory, whose followers will deduce from the lights, noises, and velocities of their motions, and from comets and meteors that have appeared simultaneously with the earthquake, conclusions favorable to the origin of the disturbance from that subtle and universal agent, electricity. Thus, for example, an earthquake occurred in Connecticut on Aug. 9, 1840, and at the same time occurred an unusual fall of meteors, numbered by a writer in the "American Journal of Science and Arts" as high as 1,500, for the night of the 9th. It is curious to observe that on Feb. 2, 1766, in Rhode Island and Massachusetts, and in November of the same year at Charleston, S. C., and at Weston, Conn., in December, 1807, a similar coincidence was remarked.

6. The chemical theory, which ascribes the disturbance to fermenting or decomposing minerals. A curious instance of decomposition of crystalline rocks is reported by Dr. Hunt. They were principally gneisses with hornblendic and micaceous schists, and are completely decomposed to a depth of fifty feet or more from the surface, being changed into an unctuous, reddish brick-clay, in the midst of which the interbedded layers of quartz are seen retaining their original positions. The believer in the conversion of metallic potassium, by rapid inflammation, into common potash in the deep recesses of the earth, finds in the saltpetrous sandstone an argument for his belief in the chemical theory of earthquakes.

Observations.—It is much to be regretted that phenomena accompanying seismic disturbances have been hitherto so imperfectly noted. The manner in which these workings of Nature reveal themselves to us have such a powerful influence upon the imagination and understanding that few people are sufficiently calm and collected to report fully the attendant circumstances. The lack of any definite bureau to which information could be forwarded by individual observers was also a powerful factor in maintaining the state of ignorance on this subject, and to obviate this want the Director

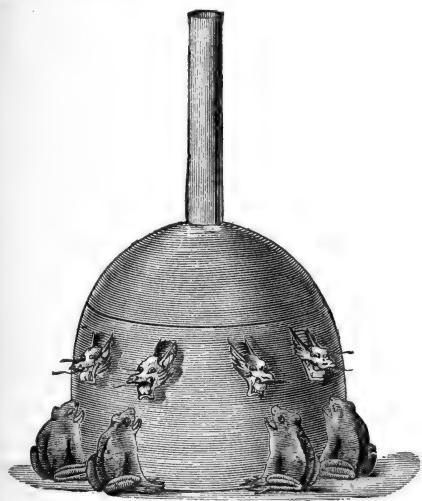
of the Geological Survey called a meeting at Washington on Nov. 21, 1884, to consider and arrange a systematic plan of earthquake-observation throughout the country. It was decided to attempt work in two directions: First, by the distribution of circulars, which were to be filled up by individual observers and returned to the Geological Survey after the occurrence of an earthquake; and, secondly, the establishment of stations, provided with instruments for recording the earth's motion. The address, to which inquiries and facts of interest can be sent, is Division of Volcanic Geology, U. S. Geological Survey, Washington, D. C.

An attempt has been made to distinguish, by the use of adjectives, the relative degrees of intensity of shocks, and the following table has been prepared for the use of observers:

1. *Very light.*—Noticed by a few persons, but not generally felt. 2. *Light.*—Felt by a majority of persons, rattling windows and crockery. 3. *Moderate.*—Sufficient to set suspended objects, as chandeliers etc., swinging, or to overthrow light objects favorably placed. 4. *Strong.*—Sufficient to crack the plaster in houses, or to throw down bricks from chimneys. 5. *Severe.*—Overthrowing chimneys or walls and injuring some buildings. 6. *Destructive.*—Causing general destruction of buildings, etc. It is hoped that future observers will use this scale in their reports to the Geological Survey. The following suggestions are made by the Geological Survey to observers: "State the observer's situation—whether in the house or out-of-doors, up stairs or down, sitting, standing, walking, reading. Then answer the following questions, referring to them by number only: 1. Was an earthquake felt at your place? 2. At what hour, minute, and second, and whether railway or local time? 3. How long did you perceive it? 4. Was it accompanied by any unusual noise? If so, describe it. 5. Give, as accurately as possible, the number, duration, and character, of each shock. 6. Specify it according to the table of intensity—*light* or *very light*, etc. 7. Do you know of any cause for what happened, other than an earthquake? Give any further particulars of interest, stating whether they are from observation or hearsay. Mention the condition of the atmosphere; any strange effects on animals; character of damage to buildings; general direction in which walls, chimneys, etc., fell. Springs, rivers, and wells, are often noticeably affected, even by slight shocks. Describe the direction in which chandeliers, etc., swung. If pictures swung, state the direction of the wall, and whether pictures on the wall at right angles to it were also moved. If doors were opened or shut, state the direction of the wall in which they were set."

Seismometers, or instruments for recording earthquake-shocks have been frequently invented and used. Briefly stated, the governing principle of them all is either a pendulum,

which will swing according to the intensity and direction of the shock, or a ball balanced

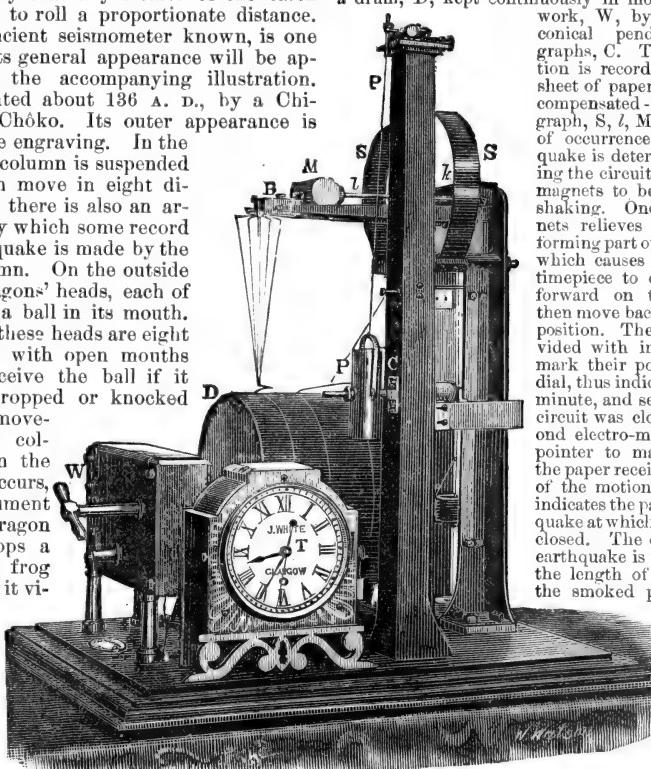


CHINESE SEISMOMETER.

in such a way that any tremor of the earth will cause it to roll a proportionate distance. The most ancient seismometer known, is one in China. Its general appearance will be apparent from the accompanying illustration. It was invented about 136 A. D., by a Chinese called Chóko. Its outer appearance is shown by the engraving. In the inner part a column is suspended so that it can move in eight directions, and there is also an arrangement by which some record of the earthquake is made by the moving column. On the outside are eight dragons' heads, each of which holds a ball in its mouth. Underneath these heads are eight frogs, placed with open mouths ready to receive the ball if it should be dropped or knocked out by the movement of the column. When the earthquake occurs, and the instrument is shaken, a dragon instantly drops a ball, and the frog that receives it vibrates vigorously. Although one dragon may drop a ball, it is not necessary for the other seven drag-

ons to drop their balls, unless the movement has been in all directions. Thus the direction of the earthquake is shown. The diameter of this instrument is eight feet. Not only is this instrument of interest because of its antiquity, but also because on account of the close resemblance that many modern instruments bear to it. Another instrument, also of Eastern origin, is the magnetic seismoscope of Japan. On the night of the destructive earthquake of 1855, which devastated a great portion of Tokio, the owner of a spectacle-shop in Asakusa observed that a magnet dropped some old iron nails and keys, which had been attached to it. From this occurrence the owner thought the magnet had, in consequence of its age, lost its powers. About two hours afterward, however, the great earthquake took place, after which the magnet was observed to have regained its power. The latest and most complete apparatus is the seismograph, invented by Messrs. Gray and Milne; it records the horizontal motion, the vertical motion, and the time. Mr. Milne thus describes it:

In this apparatus two mutually rectangular components of the horizontal motion of the earth are recorded on a sheet of smoked paper wound round a drum, D, kept continuously in motion by clock-work, W, by means of two conical pendulum-seismographs, C. The vertical motion is recorded on the same sheet of paper by means of a compensated-spring seismograph, S, I, M, B. The time of occurrence of an earthquake is determined by causing the circuit of two electro-magnets to be closed by the shaking. One of these magnets relieves a mechanism, forming part of a time-keeper, which causes the dial of the timepiece to come suddenly forward on the hands and then move back to its original position. The hands are provided with ink-pads, which mark their positions on the dial, thus indicating the hour, minute, and second when the circuit was closed. The second electro-magnet causes a pointer to make a mark on the paper receiving the record of the motion. This mark indicates the part of the earthquake at which the circuit was closed. The duration of the earthquake is estimated from the length of the record on the smoked paper and the rate of motion of the drum. The nature and period of the different movements are obtained from the curves drawn on the paper. Mr. Gray has



GRAY AND MILNE'S SEISMOGRAPH.

since greatly modified this apparatus, notably by the introduction of a band of paper sufficiently long to take a record for twenty-four hours without repetition. The record is written in ink by means of fine siphons. In this way the instrument, which is extremely sensitive to change of level, can be made to show not only earthquakes, but the pulsations of long period which have recently occupied so much attention.

ECUADOR., an independent state in South America. (For details relating to area, population, and territorial division, see "Annual Cyclopædia" for 1885.)

Government.—The President of the Republic is Don José María Plácido Caamaño, whose term of office will expire on May 16, 1889. The Vice-President is Don Pedro José Cevallos. The Cabinet was composed as follows: Interior, Foreign Affairs, Public Instruction, and Charity, Señor J. Modesto Espinosa; Finance and Public Works, Señor V. L. Salazar; War and Navy, Gen. J. M. Sarasti. The Minister of Ecuador at Washington is Dr. Don Antonio Flores. The Consul-General of Ecuador at New York is Señor Francisco Spier. The American Consul-General at Quito is Owen McGarr, and the Consul at Guayquil H. Beach.

Army and Navy.—The strength of the regular army in 1886 was 5,000 men. The navy consists of several sea-going and river steamers.

Finances.—The indebtedness of the republic, on Dec. 31, 1885, was composed of the foreign debt, \$11,400,000; the home debt, \$3,879,-181; and \$1,224,825 interest due on that date; the aggregate national indebtedness was consequently \$16,504,006.

The income of the nation during the fiscal year 1885 consisted of a balance in the treasury of \$191,543, income from revenues and contributions, \$2,524,175; and money obtained from temporary loans, \$1,327,486, aggregating \$4,043,204. The outlay was as follows: Salaries and commissions, \$801,379; public instruction, etc., \$235,781; postal service, \$82,402; army and navy, \$1,052,360; public works, \$39,144; railroads and telegraphs, \$59,201; Chones high-road, \$10,012; advances to banks of Ecuador, Quito, and La Union, \$1,264,909; indemnities and interest, \$156,949; payments for building wharf and to hospitals, \$151,992; expense of forwarding specie, \$75,805; constituting a total of \$3,929,-934. After deducting the expenditure from the revenue, etc., there remained a surplus of \$113,270. In 1884 the income from revenue and contributions had been \$2,531,219, or \$7,044 more than in 1885; but, as in 1885 loans had to be made to pay current expenses to the amount of \$1,327,485, and salaries and pensions remained unpaid to the amount of \$420,-472, there resulted for the year in reality a deficiency of \$1,747,957.

In his report to Congress, dated June 10, 1886, the Minister of Finance dwells at length on the returns from the six custom-houses. In 1884 the joint revenue derived therefrom was

\$1,728,320; in 1885 it did not exceed \$1,154,-539, showing a decrease of \$573,781.

During years when the country was politically undisturbed, the returns had been as follows: 1877, \$994,630; 1878, \$909,995; 1879, \$956,958; 1880, \$962,929; and 1881, \$1,532,853. The crops of quinine-bark, India-rubber, vegetable ivory, cocoa, and coffee were ample, and sold abroad at high prices; yet in spite of the favorable circumstances then prevailing, remarks Señor Salazar, and notwithstanding the fact that the war on the Pacific caused capital and merchandise to flow from Peru to our ports, there have not been made as large returns during those prosperous years as there were during the disturbed one of 1885, with the sole exception of 1881. This seems to indicate two things: that the custom-house officers are more honest than they were then, and that smuggling has abated notably. The duty collected on products exported in 1885 was in the aggregate \$107,832 on \$4,-353,959 worth of goods.

Attempt at Revolution.—President Caamaño was attacked on Feb. 6 at Yaguache, and one of his aides was killed. Señor Caamaño, without being wounded by his assailants, escaped to Guayaquil. On his arrival there a disturbance occurred with some of his political opponents, and cries of "Viva Alfaro!" were freely uttered. During the *mélée*, the chief of police and three others were killed, and several persons wounded. About the middle of April the revolutionists sustained a great defeat at Quevedo, after which the last vestiges of the rebellion instigated by Eloy Alfaro disappeared. The provinces where Alfaro's partisans had chiefly fomented disturbance were those bordering on the Pacific, northwest of Guayaquil river.

The Galápagos.—In December, 1885, the Ecuadorian Government sent a colonizing expedition to the Galápagos archipelago, under command of a territorial official, and furnished with the republic's coat-of-arms, and a flag to be hoisted by way of asserting sovereignty over that group of islands. Since then a lighthouse has been in course of erection at Chatham island.

Foreigners.—In consequence of the Santos case and the complications it involved in 1885, the Ecuadorian Congress passed in September, 1886, a Government bill to the following effect: Foreigners who participate actively in political dissensions within the limits of the republic are liable to expulsion, while being held responsible for infractions of the laws of the republic, and their rights and duties shall be regulated, while the state of war lasts, by international law and treaties. During the existence of a foreign war or civil disturbance, they are to remain subject to the laws of public order, as though they were native-born, except so far as treaties may have provided otherwise; and they remain furthermore, with this proviso, subject to such extraordi-

nary power as has been delegated to the executive by Article XCIV of the Constitution.

Colonization.—An engineer has been sent to the Chones river to measure the land and divide it into farming-plots, and the resumption of work on the high road to connect Quito with the bay of Caráquez tends in the same direction.

Commerce.—The export movement through the ports of Guayaquil, Caráquez, and Callao in 1885 having amounted in the aggregate to \$4,353,959, it appears that there has been a falling off of \$874,911 in the export from Guayaquil, and of \$79,592 from Caráquez, compared with the corresponding period of 1884. The Minister of Finance has been unable to furnish the import figures for the year, Congress, for economical reasons, having suppressed the section for statistics.

Steamship Lines.—The Hamburg Kosmos Line of steamers was to begin touching regularly at Guayaquil, Manta, and Esmeraldas, in November, 1886. The English line of steamers has meanwhile also increased its calls at the Ecuadorian ports of Guayaquil, Manta, and Esmeraldas, on the trips to Panama, from monthly to fortnightly. A company was formed in October at Guayaquil for the purpose of establishing a regular line of vessels on the western coast of North and South America from California to Chili. During the height of the cocoa-crop, when Ecuadorian products abound at Guayaquil and there is frequently a lack of ship-room for Europe, some of the vessels of the company will be laid on the berth for European ports. The main reasons for the formation of this line were the high steamer freight and the objectionable transshipment of Ecuadorian products at Panama, causing risk and additional expense as well as loss of time, while fast-sailing vessels, careful handling of their cargo, and moderate freights will also enable the smaller shippers to supply the European market. On their return trip from Europe such vessels are to take cargo at leading west European ports direct for Guayaquil.

Railroads.—In September, 1886, work on the Southern Railroad was proceeding vigorously, and it was expected that the line would soon be in operation six miles beyond the Chimbo bridge. Simultaneously the Government made a contract for the construction of a railway line from the port of San Lorenzo to Ibarra, in the province of Imbabura, to be called the Pacific Railroad, and to be finished in six years, the Government paying during ninety-nine years to come an annual interest of 6 per cent. on the capital advanced to build the line out of its earnings.

In July a company was formed in New York under the name of "The Chones Railroad Company," with a share capital of \$500,000, for the purpose of building a narrow-gauge railway from the bay of Caráquez to the capital, Quito, the distance not exceeding 120 miles, being about half the distance between Guayaquil and

Quito. The new line in course of construction from Puerto Bolívar to Machala is of great importance to the rich province of Oro, inasmuch as it will eventually extend to Pasaje. Considerable headway has been made since the beginning of 1886 on the railroad line building between Guayaquil and Quito, under the management of the Polish engineer, Ernest Malinowski, who originated the project of the famous Oroya-Cerro de Pasco Railroad in Peru.

Salt Monopoly.—The Government made a contract with Mr. J. Kelly for the purpose of organizing properly the "Estanco de la Sal." Three kilometres of rails, after the Decauville system, were ordered from Paris, together with 30 cars, for the conveyance of the crude salt from the ponds to the Santa Elena Salinas, and thence to the wharf for shipment. A store has been built, capable of containing 5,000 tons. Rules for the manufacture of the salt have been laid down by Dr. Wolff, and operatives have been procured from Peru. Another store was built during the summer at the port of Naranjal, and a similar one at the port of Esmeraldas.

Cocoon.—There arrived at Guayaquil from the interior, for shipment abroad, in the year 1885, 24,056,521 pounds of cocoa, against 16,802,515 in 1884, being an increase for the twelve months of 7,254,006 pounds.

Ivory-Nuts.—The receipts of ivory-nuts at Guayaquil, during the first nine months of 1886, were to a great extent of an inferior quality, at prices varying from \$5 to \$5.25 a quintal on shore. There had been shipped abroad at Guayaquil, up to Oct. 1, 1886, 132,874 quintals, against 142,376 during the corresponding period in 1885, and 70,321 in 1884.

Agricultural Implements.—According to an American consular report, the implement most used in the lower section of the country is the *machete*, or cutlass. Iron bars, flattened at one end, are used for planting rice, sugar-cane, and Indian corn. In the mountainous sections, especially near Quito, crude wooden plows, having a single handle, are used. The part entering the soil is covered with a piece of iron fashioned by a blacksmith. It does not make a regular furrow, but works like a hog's nose, turning the soil both ways into ridges. Brushes bound together constitute the only harrow in use. No agricultural machinery is used, unless sugar-machinery may be thus rated.

Gold-Mines.—The recently discovered Zaruma gold-quartz mines are represented as being fabulously rich, as the Cascajal mines are also asserted to be. In September, mining-engineer Don Tito G. Sáenz de Tejada visited both on a prospecting trip on behalf of certain capitalists and quite a number of placer-mines along the banks of Chimbo river, where gold was being washed. On this tour through the Zaruma quartz-gold mines he assayed specimens of quartz an inch square containing half a dollar's worth of gold. Others have gone to inspect

the same mines, and agree with him that the newly discovered gold-mines of Ecuador have a great future before them. In May an English company, engaged in gold-mining at Portobello, in the Zaruma district, made its first gold remittance. This gold was obtained from quartz yielding, it would appear, two ounces of gold per ton, the quartz being reported free from pyrites. The mine was declared to be even more valuable than the celebrated San Juan del Rey gold-mine of Brazil.

Eruption of Tunguráhuá.—Between Jan. 11 and 14 there was a formidable eruption of the volcano Tunguráhuá. The ashes ejected spread thickly over hundreds of miles, damaging the crops, accompanied by a slowly rocking motion of the earth, and a roaring noise that was heard on Jan. 11 as far as Guayaquil. The province of Bolívar suffered most, the obscurity from the rain of ashes lasting thirty-two hours, and the cattle dying for want of food and water. In the villages of Patate and Pelileo the ashes in the streets were a decimetre in depth. Latacunga also suffered severely from the rain of ashes. Since February, 1797, Tunguráhuá had not been active, although it smoked at intervals, and its slopes were felt to be warm, especially in 1850 and 1851. On July 17, 1698, the Carhuairazo volcano, north of the Tunguráhuá and close to the Chimborazo, had caved in, causing a disastrous earthquake that desolated the province of Tunguráhuá. In April, 1886, the Tunguráhuá still gave signs of activity, and in September began pouring out lava again at short intervals, while clouds of dust and ashes enveloped the summit. While this was the state of affairs in Ecuador, the Ulbinas volcano in southern Peru, early in October, showed signs of activity. Although smoke had been issuing from it ever since the time of the Spanish conquest, the inhabitants became alarmed at its increased volume.

EDUCATION OF WOMEN, RECENT PROGRESS IN. In 1861 Vassar College, at Poughkeepsie, N. Y., was founded—the first institution, in the history of the world, designed to give to young women all the advantages of education hitherto enjoyed by young men. It was opened for the reception of students in the autumn of 1865. Many schools for women, it is true, were already in existence, styled colleges, of a high grade of excellence and doing admirable work. But Vassar was the pioneer institution explicitly intended and fairly equipped for becoming to women what the best colleges are to men. Within the twenty years that have elapsed since the opening of Vassar, great progress has been made on the novel lines projected by her founder; and during the past ten or a dozen years this progress has been surprisingly rapid.

In the United States the number of institutions for the higher education of women was, in 1874, 209, with 23,445 students; in 1884, 236, with 30,894 students. Adding to these the students in coeducation colleges and schools

of science, we have 43,307 students in 1884. Of the whole number, 18,196 are reported in preparatory departments, and 19,916 in collegiate, special, and graduate courses. The number of degrees conferred in 1884 was 884. Smith and Wellesley Colleges, both opened in 1875, are, like Vassar, thoroughly equipped for an education similar to that given in men's colleges. Vassar, besides several scholarships, has a fund of \$100,000, whose income is employed in aiding needy students. Wellesley has 24 scholarships of \$5,000 each. Bryn Mawr (Pa.) College, founded in 1880 and opened in 1885, claims the character of a university. It has borrowed from the Johns Hopkins University "the system of major and minor electives in fixed combination." The course in mathematics presupposes preliminary training through trigonometry, and the other courses equal advancement. Three classes of persons are admitted to the lectures—undergraduate students, graduates, and hearers. Bryn Mawr awards five fellowships annually—one in Greek, one in English, one in history, one in mathematics, and one in biology. These fellowships, bestowed as an honor and an approval of previous attainments, entitle the holder to free tuition, a furnished room in the college buildings, and the sum of \$350 annually. It also awards annually to a graduate of the college a European fellowship, which entitles the holder to the sum of \$500, applicable to the expenses of one year's study at some foreign university.

Many of the colleges for men are open on equal terms to women—conspicuously, Oberlin, Michigan University, and Cornell. The number of woman students at Michigan University in 1883-'84 was 177; in Boston University for the same year 154, out of a total attendance of 614. In 1879, the first year of its existence, the Harvard Annex for women had 27 pupils, and 50 in 1883-'84. Brown University has taken under consideration the subject of admitting women to its courses of study. Columbia College, New York, conferred at its last commencement the degree of doctor of philosophy on a woman.

Several associations, organized for this purpose, have been very useful in promoting the higher education of women. The Woman's Education Association has been actively employed for years in this way. A kindred association in New York was instituted in 1882. The Association of College Alumnae is giving special attention to the physical education of women. In 1883 the Western Association of Collegiate Alumnae was organized, and has been engaged in practical science. The Massachusetts Society for the University Education of Women gives encouragement and direct pecuniary help to needy women who are seeking for opportunities of advanced study. In all the colleges in the United States devoted explicitly to women, the standards have been steadily advanced, both for admission and for graduation.

In Canada, McGill University at Montreal, Victoria at Coburg, Queen's at Kingston, Dalhousie at Halifax, and University College at Toronto, admit women, in full or in part, to their courses.

England has within a few years shown a rapidly increasing interest in the superior education of women. University examinations have for some time been open to women at Cambridge and Durham. In 1884 a statute was passed admitting them to honor examinations at Oxford. University College, London, admits them to most of its courses, as does University College, Liverpool. The following colleges are exclusively for women: In London, Bedford College, Queen's College, Birkbeck Literary and Scientific Institution, Holloway College, completed in 1883, College of Medicine for Women, and a department of King's College for the higher education of women. Outside of London: Girton College and Newnham Hall, at Cambridge; Somerville Hall and Lady Margaret Hall, at Oxford; Bristol University College, at Bristol; Mason Science College, at Birmingham; Woman's College, annexed to Owen's College at Manchester; and Yorkshire College, at Leeds. In 1884 Girton College reported the number of students who had been in residence since it was opened as 181. Of these, 80 obtained honors according to the Cambridge University standard: 28 in classics, 22 in mathematics, 14 in natural science, and one in theology.

In Scotland, Edinburgh University and Glasgow University grant examinations for women. Aberdeen University gives a higher education certificate, and St. Andrews has founded the degree of *literate in arts*, about equivalent to master of arts. Queen Margaret College, especially for women, has recently been opened.

In Ireland there are two colleges for women, Queen and Alexandra, both at Dublin. The Royal University of Ireland and the Dublin University give them examinations.

Passing to the Continent, evidences of progress are apparent. In Austria-Hungary there has been, it is true, a retrogression, the entrance of women to the university courses, which was for a while permitted, being now forbidden. In Germany also the Leipsic University, at which women were allowed to follow the courses between 1871 and 1880, no longer grants this privilege. At the other universities women were never admitted. In Belgium the University of Brussels admitted women in 1881, and a few have been regularly in attendance since then. The same is true of the Universities of Liège and Ghent. In the University of France women are admitted to the courses of the different faculties. In 1882-83 the Faculty of Medicine numbered 50 female students. Italy has been the leader in the liberal education of women. Cornaro Pisacopia and Novella d'Andrea gave luster to the University of Padua, and the University of Bologna had a woman, Clotilde Tambroni, as

Professor of Greek, up to 1817. At Turin, Pavia, Padua, and Rome, diplomas have been conferred on women in medicine, law, philosophy, and natural science. Switzerland surpasses all the Continental countries in the number of woman students. In 1882-'83 there were 52 women at the University of Geneva, 36 at Berne, and 24 at Zürich. The doctors' diplomas given to women up to 1882, are 41 for medicine at Berne, and 25 at Zürich. At Zürich the conditions of admission are severe, requiring a sufficient knowledge of mathematics, and three languages, to pursue the proper studies. In Spain and Portugal the universities are shut against women, though in the latter country the subject of opening them is under discussion. In the Netherlands there are no enactments preventing the attendance of women at the universities, and quite a number avail themselves of their privilege. In Denmark and Norway the universities are open to women, and in Sweden there are provisions for their higher education. A woman recently received the degree of doctor of philosophy at the University of Upsala.

EGYPT, a principality of Northern Africa, tributary to Turkey.

Area and Population.—Egypt proper is contained within the limits of the narrow valley beginning at the cataract of Assouan, in $24^{\circ} 5'$ $23''$ north, where it has a width of about five kilometres, spreading as the Nile descends to an average of twenty-five to thirty kilometres, and then widening into the large plain through which the Nile flows in two branches and pours into the Mediterranean in latitude $31^{\circ} 5'$. The Nile in its sinuous course from Assouan covers a distance of 1,415 kilometres. The length of the delta from the point where it bifurcates to the sea is 175 kilometres in a straight line, and from Aboukir to the Peluse it has a width of 250 kilometres. It has an area of 29,400 square kilometres, being nearly the exact size of Belgium (29,455 kilometres). The amount of land in the moudiriehs, exclusive of sandy wastes and uninhabitable parts, is 5,977,423 *feddans*; to which may be added land growing date-trees, surface of Nile from Wady Halfai to the sea, surface of canals, railways, dikes and roads, towns, fortifications, marshes, sand-hills, lakes, etc., 7,782,773 *feddans*. (A *feddan* is nearly equal to an acre. *Kharadji* and *ouchouri* are terms denoting fiscal divisions of land.) There has been no change in the average tax per *feddan* or *ouchouri* and *kharadji*, which, since the budget of 1884, was fixed at $51\frac{1}{2}$ piasters on the former and $128\frac{1}{2}$ piasters on the latter.

The agricultural population forms 61 per cent. of the total, and the foreign element 134 per cent. This was so prior to the insurrection of 1882, but note must be taken of the English army of occupation and the great number of Englishmen who have since entered the civil service of the Government. The figures in the last census, of 1882, must therefore be

somewhat changed. At that time the total number of foreigners resident in Egypt was 90,886. There were Greeks, 37,301; Italians, 18,665; French, 15,716; Austrians, 8,022; English, 6,118; Germans, 948; other foreigners, 4,116. The native population numbered 6,469,716; nomad, 245,779. Total, 6,715,495. The increase of the foreign population is chiefly in the cities of Alexandria and Cairo. The last census gave Cairo 368,108; Alexandria, 208,755; Damietta, 34,046; Tantah, 33,725; Mansourah, 26,784; Zagazig, 19,046; Rosetta, 16,671; Port Said, 16,560; Suez, 10,913. The domain of Egypt prior to the revolt in the Sudan extended to the Nile sources. The Government has withdrawn its lines as far north as Assouan and Wady Halfai.

Government.—The administration of Upper and Lower Egypt is divided into 14 moudiriehs or provinces, which are placed under the control of governors and sub-governors known as *Moudirs* and *Nazirs*. The cities of Cairo, Alexandria, Suez, Ismailia, Port Said, Rosetta, and Damietta have each a governor and prefect of police.

A special body of gendarmes was formed immediately after the insurrection of Arabi Pasha, for service in the provinces, and also for Alexandria and Cairo, and was placed under the control of a director-general attached to the Ministry of the Interior. This body is still in the exercise of its functions, but it has been found insufficient, and Moukhtar Pasha, the Sultan's commissioner, recommends that it be suppressed, and that the ancient system of the *cavas* be substituted, not only as a measure of economy, but the better to insure security, which leaves much to be desired. On the 7th of January of this year the Khedive found it necessary to issue a special decree in each moudirieh for the repression of brigandage, and summary punishment was meted out to the offenders. On the 1st of April, in the provinces of Garbiah, Dakaliah, and Fayoum, 80 brigands were hanged, 21 were condemned to penal servitude for life, and 40 to serve various terms of imprisonment.

The Sheik-ul-Islam, who resides in Cairo, is umpire between natives in all matters appertaining to minor disputes or criminal cases. An attempt has been made to replace the courts of the Cadi by native tribunals, formed somewhat after the model of the Mixed Tribunals; but the notorious venality of some of the native judges has caused this intention to be abandoned. The Mixed Tribunals, composed of the Court of First Instance and a Court of Appeals, the judges being chosen from all nationalities as well as native Egyptians, have successfully accomplished the object for which they were formed, and have been prorogued until the year 1889 by khedivial decree.

The Egyptian ministry is at present composed of five members, among whom the departmental work is distributed as follows. 1. President of Foreign Affairs. 2. Finance. 3.

War, Marine, and Interior. 4. Public Works. 5. Education. Nubar Pashar is still President of the Council of Ministers, most of whom have been chosen for their conspicuous lack of character and capacity, the better to constitute them what they are in fact, mere tools to assent to whatever measure may be proposed by a minister who himself is the creature of the army of occupation.

Notwithstanding the notoriously bad administration in Lower Egypt, the loss of the trade of the Sudan, which has been absolutely shut off by the insurrection of these provinces, together with the burden of the costs of an English army of occupation and civil employés that swarm at exorbitant salaries in all the departments, abundant harvests contributed to produce a state of comparative prosperity for 1886, which was in marked contrast with preceding years.

Army and Navy.—The Egyptian army is still an unknown quantity and in a transition state. Negotiations to determine its standing and composition are still pending between Moukhtar Pasha, the Sultan's commissioner, and Sir Henry Drummond Wolff. Moukhtar has proposed that the minimum of the army shall be fixed at 18,000 men, at a cost of £100,000 to £150,000, to be recruited in Asia Minor and Roumelia. The Sultan favors, however, an army entirely Egyptian, commanded by Turkish officers. The English, on the other hand, claim that the majority of the officers shall be English. Moukhtar proposes that the £200,000 accredited to England for the cost of her army of occupation shall be applied to the maintenance of the Egyptian army. England, as yet, has refused to accept the proposition as to the Turks, alleging that their immixture in Egyptian affairs would destroy the work of forty years of civilization. The navy consists of the limited number of war-vessels heretofore reported without any addition, and scarcely merits particular mention. Egypt, therefore, has been unable, even if she dared, to resist the seizures of her territory that England has made during the year.

The English Occupation.—Since the rebellion in 1882, an English army of occupation has remained in Egypt. Its strength at the end of 1885 was 8,000 men, principally infantry. France has on several occasions asked that England should name a day when she would leave Egypt; but up to this time no definite answer has been made. Lord Salisbury, in a speech at the Lord Mayor's banquet on Nov. 10, 1886, said: "The different Cabinets have all considered that our sojourn in Egypt should not continue except for a limited time—only it is not a question of a limit of time, but a limit to be marked by the achievement of the work undertaken. Egypt has no longer any fear from invasion from the desert. The amelioration of the interior has been rapid, order is established, and the finances offer a most satisfactory prospective. But they are

not so much so as to permit us to say that our task is satisfactory." Clearly, England does not fancy giving up the country.

On the other hand, France through M. Freycinet has spoken clearly. On the 27th of November, in the Chamber of Deputies, M. Freycinet said: "France has not only general but direct and special interests, which pledge us in the most formal manner. France has in that country a powerful colony, which at all times has worthily upheld the French name. France has traditions there, an entire past which we ought not to repudiate. Egypt, as has been said, is a sort of meeting-place of the roads of the old world. It is the point of junction between Europe and Africa, the great highway of the commerce of nations. The master of Egypt is the master of the Mediterranean. If a great power settles there in a permanent way, a great blow would be dealt to France in the Mediterranean. France can not grow accustomed to the idea that Egypt should pass definitely into the hands of a great European power. We have several times opened negotiations with England; we have taken care to conduct them with the firmness appropriate to our interests, and the respect due to a great power whose just susceptibilities should not be wounded. No, we have no intention of putting forward a demand, because if it were to ourselves that the application were made we should not allow it. But we have said to England, the hour has come when a solution should be arrived at. It is necessary to Europe and to the good understanding that ought to exist between France and England. We have appealed to the mutual cordiality of our sentiments, and have no doubt that England will be influenced by their language, for she understands both its sincerity and its importance." Europe is at this moment, in the last days of the year 1886, under the *coup* of the expressions both of the English and the French ministers.

An English army has its headquarters at Assouan, with advanced posts at or near Wady Halfai. As late as Dec. 15 of this year the rebels had made no movement in force to carry out their threat to invade Lower Egypt, but contented themselves with attacking the outposts in a desultory way. The death-rate among the English soldiers by reason of the extreme heat reached 200 deaths from this cause during the trimestre ending in July. This was also true of Souakin, on the Red Sea, where the white troops were replaced by Arabs. The British Government has signified its intention of reducing the army of occupation to five battalions, to be quartered at Assouan, Cairo, and Alexandria.

Finance.—The financial situation at the close of the year 1886, as has been seen by the statements made by Lord Salisbury, is quite satisfactory, notwithstanding the untoward effects of the Soudan disasters, and the still disorganized condition of affairs in Lower Egypt.

On the 4th of May Mr. Edgar Vincent, finan-

cial adviser to the Minister of Finance, submitted the following report:

Receipts for the year 1885 amounted to	£ (E) 9,637,173
Receipts for the year 1884 amounted to	9,403,294
Mr. Vincent estimates receipts for year 1886	9,241,586
The expenditures for the year 1886	9,282,746
Leaving a surplus of	8,840

The diminution of the revenue Mr. Vincent declares was caused by the reduction upon the *impôt foncier*.

It will be remembered that a financial scheme was drawn up, to which the powers in International Convention agreed, and which was ratified by the French Senate July 7, 1885. The agreement guaranteed a loan of £9,000,-000, to be applied in liquidation of the Egyptian debt, the loan to be liquidated by the repayment of £325,000 annually, and this sum to be considered the first charge against the Egyptian revenues until the entire loan is lifted.

The guaranteed loan by the conference of March, 1885, was issued simultaneously in London, Paris, and Berlin, in August, 1885.

The total debt of Egypt at the end of 1885 was:

Guaranteed loan	£9,000,000
Unified debt	55,991,000
Privileged debt	22,297,000
Domains loans	7,644,000
Dairia loans	8,745,000

Total £108,677,000

The administration expenditure of the Khedive's Government was limited to the sum of £5,237,000. Any surplus over the year's receipts was to be paid over to the Commissioners of the Public Debt, for the purpose of making good an imposed deduction of 5 per cent. from the interest on the Suez Canal shares held by England. The principle of the *enquête* was admitted and declared for an "exhaustive investigation into the revenue-earning capacity of Egypt"; and further, that if, at the end of two years, it should be found necessary to reduce the interest on the coupons, the Khedive should summon an International Commission, like that of 1880, to make general inquiry into Egyptian finances. These two years have nearly expired, and there seems no reason to appeal to this *commission d'enquête*. The Commissioners of the Public Debt announced, on the 26th of October, 1886, that the surplus of the payment of the November coupon of the unified debt would suffice to make good any deficiency in the unassigned revenues, and to reimburse the 5-per-cent. coupon-tax levied during the last two years, besides leaving a balance which, under the convention, will be equally divided between the *caisse* and the Ministry of Finance.

On Dec. 1 the Council of Ministers at Cairo passed the budget for 1887, showing a surplus of £56,000. On December 15 the telegraph reported that the *caisse* of the public debt granted to the Government the sum of £200,-000, on account of the sum fixed by the London Convention for capitalization of pensions.

Commerce.—The latest reports place the value of exports and imports as follows:

EXPORTS.	IMPORTS.
Cotton	£3,237,749
Cotton-seed	1,464,101
Beans	722,290
Wheat	439,045
Sugar	376,617
Textiles	71,021
Skins	190,569
Rice	138,342
Gum	128,049
Maize	233,492
Ostrich-feathers..	19,939

Customs at Port of Alexandria.—The receipts of the custom-house at Alexandria for the year 1881 amounted to £71,449; for the year 1882, £66,880; for the year 1883, £73,180; for the year 1884, £83,129; and for the year 1885, £114,590.

Railways, Telegraph, and Post.—Egypt has a railway system of a total single-line length of 1,276 miles. The length of the lines working in 1885 was 900 miles. The proportion of the working expenses to the receipts in 1884 was 40 per cent., the average proportion from 1880 to 1883 being 36½ per cent.:

The receipts in 1881.....	£1,290,882
The receipts in 1882.....	1,240,573
The receipts in 1883.....	1,212,793
The receipts in 1884.....	1,408,564
The receipts in 1885.....	1,482,379

The telegraphs belonging to the Egyptian Government at the end of 1885 consisted of a total length of 2,701 miles, the length of wire being 5,221 miles. This includes a line of 75 miles constructed in the year 1884, in the province of Fayoum. The Eastern Telegraph Company have a line to Cairo, 453 miles in length (with ramifications). The Egyptian post carried 6,575,000 letters inland and 4,631,000 foreign during the year 1884, being an increase of 16 per cent. over the year 1883. The number of post-offices at the end of the year 1884 was 187.

The Soudan.—The Egyptian Government designates, under the generic name of Soudan, all that country situated south of the second cataract. The Eastern Soudan is a level region, surrounded by a rim of mountain-chains. The provinces of Sennaar, Fasogle, and Taka, bordering on the Abyssinian plateau, are exceedingly fertile, being copiously watered and enriched by annual alluvial deposits like the delta of the Nile. They produced abundant crops of cotton, sesame, pulse, durrah, wheat, and other grains. Their jungles and forests harbor the elephant, the rhinoceros, the lion, the leopard, the giraffe, zebra, and buffalo.

The Western Soudan proper, which comprises the provinces of Kordofan and Darfour, has many of the characteristics of a desert climate. Except in the districts of Bara and Abou Haras, in Kordofan, and other depressed oases or mountain-regions, the vegetation is scanty and the earth clothed with green only during the brief rainy season. The climate of the Soudan is divided into *shittah* and *saif* (winter and summer), which is better interpreted as a

rainy and a dry season, varying in length according to latitude. At the Nile sources, where the Lakes Victoria, Albert, and Ibrahim act as water-sheds, it rains almost constantly. To the south of Khartoum there is a great waste of marsh, 1,200 miles in extent, whose inhabitants present the most wretched state of misery and degradation. At Gondokoro *terra firma* begins, and both the climate and the natives are vastly superior to the country in the north.

Khartoum and Adjacent Provinces.—The splendid conquest of the great Mehemet Ali in 1821 became a source of much revenue during succeeding administrations. Ismail Pasha, anxious to link his own name with that of his illustrious grandsire, named Gen. Gordon the Governor-General of the Interior Provinces, and attached to him an American officer as his chief of staff, with orders to carry the Egyptian flag to the Great Lakes. Col. Chaillé Long, following the river to its sources, executed the order of the Khedive, and not only made a treaty whereby the powerful negro monarch, M'Tsé, King of Uganda, recognized the authority of the Egyptian Government, but, returning, discovered in the navigation of the hitherto unknown river (from a point from which Capt. Speke had been driven) a third great basin and lake, which was named Lake Ibrahim by the Khedive in honor of his father, Ibrahim Pasha. The navigation of this river and discovery of the lake solved finally and definitely the vexed question of the Nile sources, the honor of the discovery of which, on the authority of Gen. Gordon, belongs entirely to Speke, Baker, and Chaillé Long. The importance of water communication between the Egyptian posts and the newly acquired territory was incalculable, and subsequently led to the appointment of Dr. Emin Bey as the Egyptian governor. The insurrection of the Mahdi, the causes that led thereto, the return of Gen. Gordon to the Soudan, the rescue expedition of Sir Garnet Wolseley, the fall or evacuation of Khartoum, and the disappearance of Gen. Gordon, have been treated at length under the head of EGYPT in the "Cyclopaedia" for the preceding year. The English expedition, having failed, retired from the Soudan, and was followed by the victorious barbarians to Wady Halfai. The authority of the Egyptian Government in the Soudan has been suspended in view of the successes that have attended the insurgents. Since the 26th day of January, 1885, when Khartoum was reported by Gen. Wilson as having been seen in the hands of the Mahdi, there has not been one reliable word as to the fate either of Gen. Gordon or of the city of Khartoum. As late as the 15th of December it was reported that the Soudan capital had been razed to the ground; but since then this account has been positively denied by an intelligent Arab. The mystery with which the whole matter has been enshrouded is absolute. The rebels send their

messengers into the Egyptian lines to give just such information as may seem fitting to them. On the 9th of December two Arabs arrived in Korosko and reported that the "dervishes had all been killed by the Shukeriah and Dabaya tribes, who had laid waste the country of Sennaar. Osman Digma, reported slain at divers times, has been resurrected, and had been sent on a special expedition to subdue revolted tribes," etc. Mohammed El-Kheir arrived, it is said, on the 6th of November at Berber with his officers to collect taxes. Abdallah has assumed the title of El Mahdi, Mohammed-Ahmed having died several months ago at Omdurmann, opposite Khartoum, of small-pox, where a handsome tomb now marks his resting-place, which is looked upon by the Moslem Soudanieh as no less sacred than the tomb of Mohammed at Mecca. On the 8th of September Dongola was in the possession of the rebels, who were estimated at 8,000 strong. The country at that time was reported as suffering from a famine by reason of the invasion. Several skirmishes had taken place with the outposts, but no serious engagement.

Cossacks in the Soudan.—From Russia comes the information that a party of Cossacks are actually serving in the rebel army of the Soudan; and also that another Cossack party is working its way into Abyssinia with presents to King John. These Cossacks are said to be "free lances," who, disappointed in their intention to settle in the western Caucasus, have turned their faces toward Abyssinia, possibly with encouragement from the Russian Government. Following this it is announced that the Negus of Abyssinia has decided to merge the Abyssinian Church (Copt) with the Russian.

Gordon Bonds.—In Cairo, on the 22d of February, it was discovered that a strong ring had been formed for the issue of fictitious bonds alleged to have been issued by Gen. Gordon during the siege of Khartoum. Several prominent Government officials were compromised.

Fraud in the Daira Sanieh.—On the 4th of July a commission d'enquête was organized for the purpose of investigating frauds committed in the Daira Sanieh. The Egyptian director and others were found to have substituted fraudulent papers relating to contracts.

Diplomatic Incident.—During the French invasion in 1797, one Sheik Suleiman obtained recognition as a French subject. The French consul, some time in July of this year, had occasion to give a certificate of protection to one of the descendants of the Sheik, good for one year. The Egyptian Government held, nevertheless, that they were Turkish subjects, and refused to acknowledge the certificate. The French consul thereupon wrote to the Egyptian minister, declaring that, if the certificate was not recognized as issued by him, he would within the twenty-four hours demand his recall. Nubar Pasha immediately recognized the consul's claim, accompanying his reply with the necessary apology.

Death of General Count Bellegarde.—On the 13th of January Gen. Bellegarde, Privy Councilor to the Emperor of Austria, died in Cairo, and was buried with great pomp and ceremony. The body was escorted by both English and Egyptian troops, and a large civic escort.

The ex-Khedive Ismail.—On the 31st of May the ex-Khedive addressed a circular to the consuls-general, requesting them to hold a meeting in Cairo, in order to decide upon a *modus procedendi* as to his claim, amounting to the sum of £5,000,000, besides a permanent yearly budget charge of £150,000. On the 27th of September Ismail's agent, with two armed Albanians, took possession of property contiguous to the Ismailia Palace, or the ground of the palace, but they were ejected soon after. About this time the Council of Ministers, the Khedive Tewfik presiding, resolved not to admit the claim of the ex-Khedive, his father, who asked that a pension of £20,000 should be accorded to his mother.

In the matter of the seizure made by Ismail's agent, the Mixed Tribunals have recently rendered a decision sustaining the action of the ex-Khedive's agent.

The ex-Khedive supports several establishments in Europe, the palace of La Favorita at Naples, a house in the rue Neuve des Mathurins in Paris, and another in London. The greater number of his wives remain in the palace at Naples, but he recently arrived in Paris accompanied by four of his favorites.

The Suez Canal.—On the 8th of January, 1885, the French ministry proposed to the Cabinet of London that the Suez Canal should be neutralized, and the free use guaranteed to all nations. England, in the early part of December of this year, semi-officially declined to accept this proposition, if it should tend to bar the passage of her fleets in time of war. The receipts for the year 1885 amounted to 65,049,945 francs; the expenditures of every nature amounted to 31,021,178 francs, making a total earning of 34,028,767 francs.

During the year 1885, 3,624 ships, representing 6,335,753 tons, passed through the canal, compared with the year 1884, an augmentation of 340 ships and of 464,253 tons. This is the more remarkable in view of the commercial, industrial, and maritime depression that prevailed during the entire year. This is evident in the railway reports of France, which show a diminution in receipts for that year of 37,000,000 francs; while those of England lost 21,000,000; the commerce of France fell of 175,000,000; the commerce of the United States, 475,000,000; the commerce of England, 1,013,000,000.

In accord with the Egyptian Government, the administrators of the canal are engaged in enlarging and deepening the channel along its entire length from Port Said to Suez, adding thus an additional width of 15 metres and depth of 8½ metres. The business of the canal is best illustrated by the following:

MOVEMENT OF SHIPS THROUGH THE SUEZ CANAL.

YEARS.	No. of ships.	Tonnage.	Receipts.
1870.....	486	486,690,870	4,845,771,42
1871.....	765	761,467,050	7,593,835 18
1872.....	1,082	1,160,748,542	14,377,092 17
1873.....	1,178	1,367,767,820	20,850,726 15
1874.....	1,264	1,681,650,140	22,667,791 94
1875.....	1,494	2,009,984,091	26,480,790 61
1876.....	1,457	2,096,771,613	27,651,498 20
1877.....	1,668	2,355,447,693	30,180,928 72
1878.....	1,593	2,269,678,815	23,845,672 87
1879.....	1,477	2,268,382,194	27,181,116 77
1880.....	2,026	3,057,421,581	36,492,620 25
1881.....	2,727	4,186,779,769	47,198,582 67
1882.....	3,193	5,704,808,885	55,421,089 59
1883.....	3,807	5,775,861,795	60,558,488 57
1884.....	8,234	6,871,500,925	58,628,759 82
1885.....	8,624	6,385,752,984	60,957,269 97

Of these there were 2,537 commercial ships, 580 postal, and 507 composed of transports, canonnières yachts, rams, and other vessels of war. The nations were thus represented: English, 2,734; French, 294; German, 155; Holland, 139; Italian, 109; Austro-Hungarian, 69; Norwegian, 30; Russian, 29; Spanish, 26; Ottoman, 16; Egyptian, 7; Portuguese, 5; American, 3; Danish, 3; Japanese 2; Belgian, 1; Greek, 1; Persian, 1.

On May 27 an action was brought against "La Compagnie Universelle du Canal Maritime de Suez," by the Egyptian Government, for customs dues on dredges and plant used in the service of the canal, and the case was decided by the Mixed Tribunals in favor of the Government.

The company have within a short time purchased, for the service of the canal a sweet-water way leading to the Suez Canal, for the better alimentation of points leading from Ismalia to Port Said.

Discovery of Petroleum.—On the 11th of April the Egyptian Government announced that the sources of petroleum discovered several years ago at Gebel-el-Ziet (Oil Mountain) on the Red Sea, and also at Djemisah, were running oil at the rate of 150 metres cube per diem, and that the Government was prepared to deliver samples of the oil at Suez, and had granted £3,000 in order to continue further exploration. On the 18th of September the convicts employed in working the wells revolted, the troops were called upon to quell the riot, and killed twenty-four men. The discovery promises to become a source of great revenue for Egypt.

Osman Digma, reported as having been killed, has been resurrected, and when heard from, on the 18th of June of this year, was actually threatening Tami with a large force. He has successfully held the Suakin route against all the efforts of the English either to open it or to construct the proposed railway from Suakin to Berber.

Annexation in the Red Sea and Indian Ocean.—Egypt, by virtue of cessions from Turkey, held undisputed control over the province of Harrar, the ports of Suakin and Zeilah, and by virtue of conquest claimed the port of Berbera,

Socotras, Cape Guardafui, and the east coast of Africa down to the equator. England seized in the commencement of the present year Harrar, Zeilah, and Berbera, and as late as October 30 took possession of the island of Socotra. Italy, on the other hand, in accord with England, seized and occupied with Italian troops the ports of Assab and Massouah. France has had possession of the port of Obok, which she obtained several years ago by right of purchase from Menelik, King of Shoa. France has also obtained a foothold at Madagascar and in the Comoro islands. Germany, not to be outdone, has sent a squadron to Zanzibar to execute a naval demonstration there, it is said, to demand reparation for the murder of the late Dr. Jühlke, a German subject, who was murdered at Kisimayu. The demonstration is in fact intended to strengthen the hands of the German colony adjacent to Zanzibar. A German squadron was before Zanzibar on Dec. 25.

The seizure of Massouah by Italy was represented by Egypt, in so far that she protests that she should not pay the annual tribute of £35,000 heretofore paid by her to Turkey, but that it should be paid by Italy. In consequence of the reported removal of the French flag at Dongarita, a point on the Somali coast, over which both England and France claim the right of a protectorate. It is said that the French Government has requested explanations concerning the motives for the action of the English resident at Aden.

The Porro Expedition.—On January 26, Count Porro, an Italian subject, quitted Naples in command of an expedition organized by the Commercial Exploration Society of Milan and the Italian Geographical Society, for the purpose of entering Harrar and the Somali country. The Emir of Harrar, when he heard of it, sent a number of his armed men ostensibly to act as friendly guards. When near Arton in the interior, the arms of the Count and his companions were stolen, and the whole party treacherously murdered.

The King of Uganda and the Massacre of Missionaries.—King M'Tsé died in 1884, and was succeeded by his son, Prince M'Wanga, who has recently caused Bishop Hannington to be put to death and many Christian converts burned at the stake. A dispatch dated Dec. 15 announced that King M'Wanga has attacked and defeated Keba Rega, the King of Unyoro. From this it is inferred that Emin Bey, the Egyptian governor, is in peril.

Emin Bey, lately named a pasha by the Khedive of Egypt, is an Austrian subject by the name of Schnitzler. He joined the service of the Government of the Equatorial Provinces some time in 1878, for the purpose of pursuing his botanical investigations, and was made sub-governor of the extreme southern provinces, extending to Uganda, by Gen. Gordon, when the latter was Governor-General, with headquarters at Gondokoro, but which he subsequently removed to Khartoum, leav-

ing Emin Bey to work out his destiny in the interior region. It seems that Dr. Schnitzler has been assisted by Dr. Junker, a Russian subject, whose arrival at Zanzibar on the 4th of December of this year has inspired the British Government with the idea of sending a "rescue expedition" to Emin Bey, who, it is alleged, is placed in great peril by reason of the attack made upon the King of Unyoro by the King of Uganda. The last letter, dated July 7th of this year, however, makes no mention of his dangers, but speaks particularly of the scientific work in which he is engaged, and of the small-pox epidemic, which is decimating the country. Several days after the arrival of Dr. Junker, the following dispatch was received from Zanzibar, dated December 10: "Dr. Junker, who arrived here last week from the interior of Africa, will leave on the 21st for Cairo. He reports that Emin Pasha, by the latest advices, was well, and had reduced the rebels to submission as far as Lardo, on the White Nile, with which place he was holding daily communication by steamer." The "Kreuz Zeitung," of Berlin, in commenting on the work of the East African Delimitation Conference, which met in London, says: "The English, with their usual unselfishness, have appropriated the territory between the Kelima-Njaro and the Tana river, forming one of the best routes into the interior. The Tana leads across the Renia to about Lake Nimwascha, or pretty near the 36th degree of east longitude, while the Victoria Nyanza stretches out its eastern point to the 35th degree of east longitude. England has therefore secured the route to the Victoria Nyanza, the source of the Nile, and from this point of view quite a new aspect is lent to the zeal with which a great expedition is being organized in London, with the ostensible object of releasing Emin Bey (now Pasha) and Cassati. The £30,000 to be employed for this purpose will be a little investment in view of the aim to be achieved. On pretense of pursuing a humane purpose, the English would at once show their power in those regions and suddenly take possession of the route to the interior lakes."

Mr. H. M. Stanley, the distinguished explorer, was recalled from America, where he had engaged to make a lecture tour, and, returning to England, was given £10,000, as a contribution from the Egyptian treasury, and £20,000 from alleged private sources, Mr. Stanley left England on the 30th inst. for Africa, to take command of an expedition for the rescue of Emin Pasha. England's jealousy has undoubtedly been aroused by the encroachments of Germany on the east coast, and her imperiled commerce, as much as the peril of Emin Pasha, is doubtless the motive of an expedition in which the hand of the English Government is apparent.

Excavations and Discoveries.—On the 15th of June, in the presence of the Khedive, Moukhtar Pasha, and Sir Drummond Wolff, the bod-

ies of two royal mummies, lately discovered in the tomb of Deir-el-Behri, were unwrapped by M. Maspero, and found to be those of Rameses II and Rameses III, kings who belonged to the most brilliant period of the ancient empire, and that which succeeds to the expulsion of the Hyksos, who lived 1600 years b.c., and about the time of Moses.

The excavation of the Sphinx is still in progress. This gigantic animal, according to Maspero, occupies the center of an amphitheatre of rocks in the form of a bowl, which seems to have been quarried by the hand of man, it having been formerly a united surface, which was dug out, leaving in the center a block out of which to sculpture the figure of the Sphinx. This colossal work, Maspero declares, dates from a time anterior to the first dynasty.

The discovery of "the House of Pharaoh at Tahpanhes," by Mr. Flinders Petrie, the discoverer of the ruins of Naukratis, has excited great interest among the students of history. (See *Archæology*.)

Sir H. Drummond Wolff's Mission.—Sir Henry was accredited by the English Government as envoy extraordinary to the Sultan in July, 1885, for the purpose of establishing an *entente* with the Porte in matters pertaining to Egypt. In November of the same year Sir Henry went to Egypt, where he was followed in the beginning of this year by Moukhtar Pasha as a commissioner on the part of the Sultan. Several conferences have taken place, but nothing has, as yet, been concluded. It is said that Moukhtar claims that the pacification of the Soudan may be speedily expected as soon as the English withdraw their troops from Egypt. Sir Henry has been recalled to England, and the Porte has (Dec. 9) sent a note to the British Government, again intimating the desire of the Ottoman Government to discuss the question of the evacuation of Egypt. The year 1886 closed without any definite arrangement or solution of the question, which continues to excite much interest in diplomatic circles.

ENGINEERING. Bridge at Oporto.—The two cities of Oporto and Villanova de Gaia together contain 150,000 inhabitants, and, as the commercial centers of a rich agricultural and wine-growing country, are the wealthiest and most active towns of Portugal. They are built upon the opposite banks of the river Douro, and hitherto the means of intercommunication have been inadequate. A suspension-bridge was built about fifty years ago, but it did not meet the demands of traffic, and, moreover, was not considered safe. Recent improvements in rigid bridges of wide span led the Portuguese Government to give out contracts for a bridge that was finished in August, and is in many respects a remarkable structure. The necessary extreme length was 1,278 feet, and, as the depth of water and the nature of the bottom in mid-channel precluded the possi-

bility of a central pier, it was decided to have but one span. The conditions favor this in some respects, for the banks are precipitous, and each city has an upper and a lower section. Therefore, two roadways were called for, one of them 160 feet higher than the other. A glance at the illustration will show how interdependent are the three parts, namely, the upper platform, the main arch, and the lower platform. The outward thrust of such an enormous arch would be tremendous at the piers upon which it rests, but the lower platform, like the taut string of a bow, receives part of this strain, and could probably sustain the

proached one another. The arch rests upon the masonry through steel rollers placed in steel coussinets, which in turn rest upon cast-iron beds that distribute the pressure over the masonry. The lower platform is divided into five bays by suspension-rods. It is composed of simple lattice-girders 29 $\frac{1}{2}$ feet apart and 10 $\frac{1}{2}$ feet between chords. The floor-beams are 10 feet apart, and five rows of longitudinals receive the plates of the roadway. A novel method was employed in mounting the arch. The piers and approaches to the arch being in place, shears were erected over each pier on the upper platform, and two cables, presumably

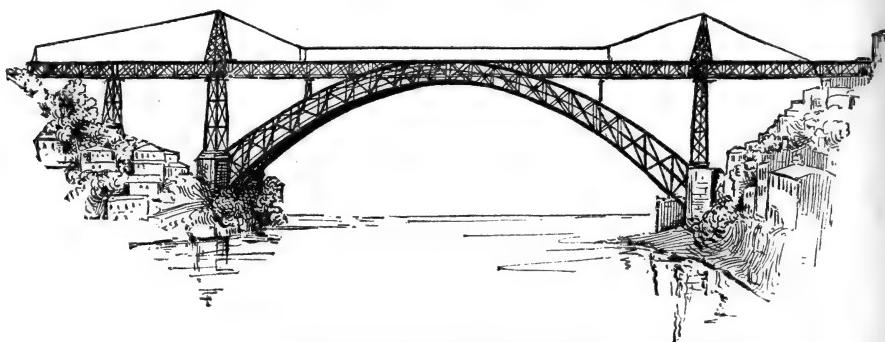


FIG. 1.—BRIDGE OF LUIZ I, OPORTO, LISBON.

whole of it in case of need. The great height of the arch—240 feet above low water—offers a dangerous leverage for high winds, and against this the upper platform with its lattice-girders affords ample provision. Taken in connection with the spread of the arch-trusses it renders the structure remarkably strong. The span of the main arch is the greatest in existence—566 feet. The thickness of the arch at the key is 26 feet, about $\frac{1}{2}$ of the span. The thickness increases downward until it reaches 55 feet at the piers. This reverses the plan followed in the great arch at Maria Pia, where the main girders approach one another and are united at the springers. The engineer, Mr. Seyrig, was led to make this change in view of the different service expected of the bridge. The Maria Pia is distinctively a railway-bridge where the load moves *en masse*, and the moment of strain at the key of the arch is of the first importance. With the "Luiz I Bridge," as it is called, at Oporto, the case is different, and it became possible to diminish the central thickness of the arch in view of the character of the expected load. Again, Mr. Seyrig assumed, though there may be two opinions in this particular, that the architectural effect would be better, with wider supports at the springers. Another and more obvious reason was that a roadway 26 feet wide had to be provided at the springers, and this would have seriously interfered with the proper distribution of cross-braces at that point, had the main arches ap-

of steel wire, were stretched across the river, passing over the shears and anchored securely on the shoreward side. These shears and cables are shown, still in position, in the drawing of the completed bridge (Fig. 1). They are also shown more in detail in Fig. 2. On the cables were traveling-pulleys, which could be run out to any point over the river. Through the pulleys the hoisting-tackle ran and was worked by windlasses at the base of the shears. Gas motors were used to drive the windlasses, and gave perfect satisfaction. The successive pieces of the arch were floated out on boats and hoisted thence by means of the tackle. The workmen soon learned to handle pieces of 6,500 pounds, raising them 195 feet, into position, where they were temporarily held by guys running upward and backward to anchorages on the piers. When the two demi-arches approached one another, measurements were taken, and one was found to be 3 inches lower than the other. It was therefore raised to the proper level. When everything was ready to insert the key-pieces, it was found that a difference in level of 2 inches existed, and that the space was too small by about 1 $\frac{1}{2}$ inch. The engineers had observed that the degree of separation was greatest in the morning; accordingly, everything was arranged to mount the last two pieces at an early hour on Aug. 11, 1885. One of them fitted accurately, while the other was $\frac{1}{10}$ of an inch too large, but this error was soon corrected, and the most difficult

part of the work completed. It has been objected that this method of construction is dangerous, but after the arch at Oporto had ad-

only two European bridges, the Alexandrovsky over the Volga, and the Moerdijk in Holland. The considerable local population rendered it desirable to provide a carriage- and foot-way, as well as a railway. The 15 spans are each 274 feet, giving a total length of 4,110 feet to the bridge proper, and the clear height above the water is 43 feet, which is 14 feet higher than the river has ever been known to rise. The carriage- and foot-ways are 30 feet above the railway, occupying the top of the structure. The right abutment and the first pier rest upon bed-granite. The rest of the piers, upon caissons sunk to a mean depth of 50 feet, and resting partly upon rock and partly upon the white clay of the locality. All the masonry of the piers is of granite quarried near by on the banks of the river. At either extremity the bridge is prolonged by viaducts each composed of three spans of parabolic girders which intersect the bridge at an angle to connect with the highway, while the railway continues its rectilinear course. These viaducts add 480 feet to the length of the bridge. The total cost was \$1,950,000. Into its structure there enter 883,000 cubic feet of masonry and 3,280 tons of Portland cement. The

iron-work weighs nearly 10,000 tons, exclusive of the caissons. It has been three years in building. Prof. Belelubsky, of St. Petersburg, superintended the construction with Engineer-in-Chief Beresin. Under a test of 8 locomotives on the rails and a dead-weight of rail-way-iron on the carriage-way, the deflection did not exceed $\frac{5}{200}$ of the length of each span.

Mexican Bridge.—Mr. J. Foster Flagg describes, in the "Transactions of the American Society of Civil Engineers," a bridge built by an ignorant Mexican peon that deserves a place among the triumphs of modern engineering. Mexican bridges are usually built of arched masonry, and anything like a truss is unknown to the natives. In the State of Colima, bridges of any kind are few, and there were none at all over the river Armeria owing to its depth and rapidity, especially in flood-time. The peon referred to chanced upon a stray number of "Harper's Weekly" containing a picture of a suspension-bridge. It



FIG. 2.—BRIDGE OF LUIZ I. MOUNTING THE ARCH.

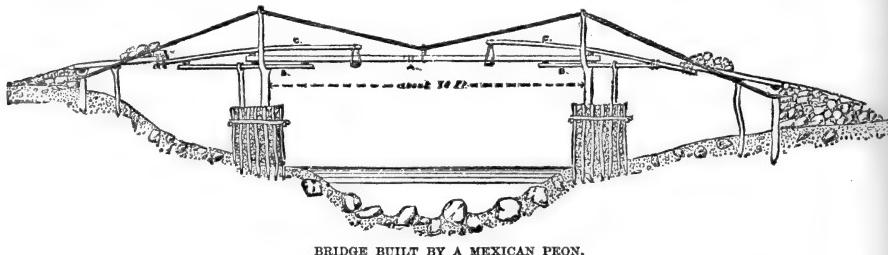
vanced well over the river two successive storms of great violence occurred, causing no damage beyond the demolition of some loose scaffolding.

Bridge and Viaduct in Russia.—A new Russian railway just completed is 285 miles long and connects two of the great lines that terminate respectively at Nicolaiev and Sebastopol on the Black Sea. The new road crosses the Jekaterine district, and the most interesting engineering features of its construction are a viaduct over a deep ravine through which runs the river Juquetz, and a fine bridge over the Dnieper river. The viaduct is remarkable for its height above the water, as well as for the depth of its foundations. The total length is 1,050 feet, and consists of five arches sustaining non-continuous lattice-girders. The track, on a level with the upper plats-bands, is 156 feet above the water and 222 feet above the bottom of the caissons.

The Dnieper bridge is exceeded in length by

aroused the dormant engineering spirit within him, and, being a ferryman, he went to work with such materials as the region supplied to substitute a bridge for his own advan-

ture stratum of strong clay existed, and it was only necessary to shore up the roof temporarily with strong timbers, to secure it against possible subsidence. In view of the

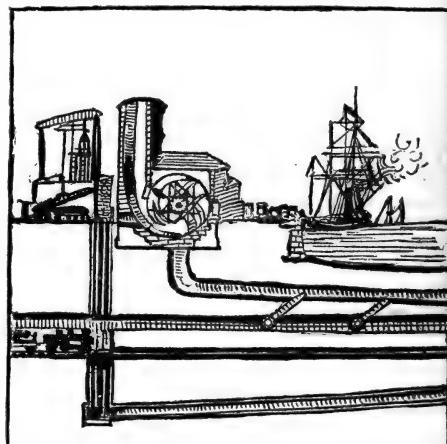


BRIDGE BUILT BY A MEXICAN PEON,

tage. His first attempt was on the suspension plan, the cables and suspenders being twisted from wild vines, passed over rude timber towers and anchored to boulders. No iron was employed. Mr. Flagg frequently used the bridge, being engaged at the time in constructing a railway near by. A freshet swept the bridge away before it was a year old but the peon, nothing daunted, went to work again and made a second one, as shown in the illustration, evolving from his own head several of the best principles of modern bridge-construction. The piers were made with cribs of driven stakes bound together and filled with stones. The suspension-cables were of twisted vines as before, bound together with lighter vines. The stringers of the main span in two pieces were tied together at A and supported there by the cable—the only direct use required of it. The towers were natural forked timber, the cables resting in an upper crotch, and the corbels, B B, in a lower crotch. The stringers were further supported by cantilevers, C C, which were loaded with stones near the abutments to balance the central strain. The rest of the abutment construction is apparent from the sketch. The roadway was only wide enough for the passage of one animal at a time, and proved strong enough for all the demands that were made upon it. It was in use for about 18 months, when a heavy freshet carried it away, and it is not known whether the experiment has been repeated or not.

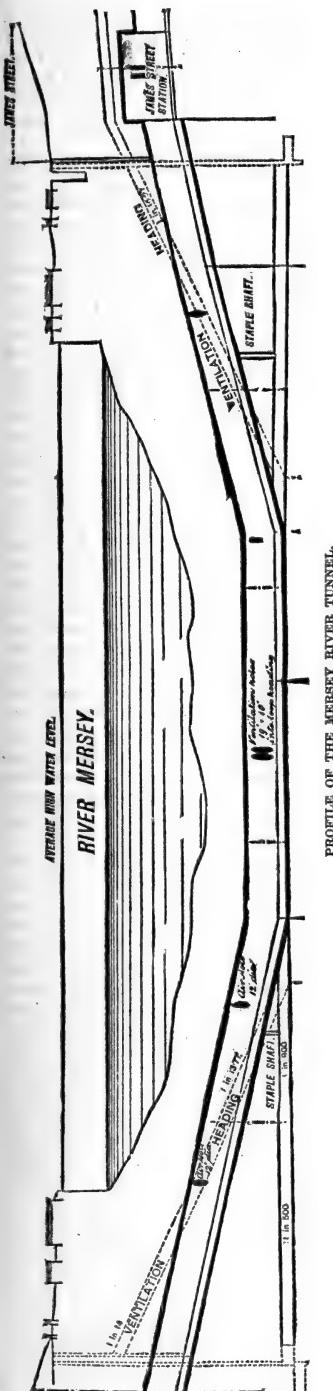
The Mersey Railway Tunnel.—This highly creditable example of subway construction was opened to the public with due ceremony by the Prince of Wales on Jan. 13, 1886. Its progress was briefly described in the "Annual Cyclopaedia" for 1885, but certain features of the completed structure deserve more detailed description. As a whole the work is notable rather for its magnitude and careful elaboration of detail than for any especial difficulty of construction. With the exception of about a hundred yards under the river, the tunnel runs through solid sandstone rock, and no precautions had to be taken against caving. Even where the rock fell below the crest of the tunnel it was found that a nearly water-

magnitude of the expected traffic, great care was taken to provide for perfect drainage and ventilation. To this end, drainage-headings were run in both directions from the central level at a slight incline shoreward, as far as the working shafts at each end, which were sunk to a sufficient depth, and provided with powerful pumps. These served to keep the main headings free from water during the progress of the work, and in their finished state serve the same office for the completed tunnel. The infiltration of water, however, through solid sandstone and the lining of blue Staffordshire brick, is very slight and will probably cease altogether through the gradual deposit of silt. The ventilation heading runs beside the central level and thence rises at a steep incline to the fresh-air shafts—one at either end of the tunnel—where two huge fans, respectively thirty and forty feet in diameter, maintain a perpetual current and change the air in the



TERMINAL ARRANGEMENTS OF MERSEY RIVER TUNNEL.

tunnel about once in seven minutes. The general arrangement of the three tunnels (air, drainage, and traffic, at their landward termini) is shown in the illustration.



The depth of the tunnel below the street surface at the termini is such that elevators, or, as the English more concisely call them, "lifts," are necessary at the stations. There are three of these at each of the main stations of the tunnel, each being a room 17×20 feet, handsomely lined with hard woods, and supported by framed iron floors. Each lift will carry 100 passengers at a time. The lifting power is hydraulic, fed from a large tank.

The distance between the two water-side stations is 2,000 yards. The greatest depth of the tunnel-crown, below average high-water mark in the Mersey, is 130 feet, of which 30 feet are below the river-bed. The deepest elevator shaft is at the Hamilton Square station, Birkenhead (87 feet 6 inches); that at James Street station, Liverpool, is 76 feet 6 inches. In general profile that part of the tunnel that underlies the river consists of an incline from the Liverpool side of about 900 feet, at a grade of 1 in 27; a mid-river section, nearly level, but graded both ways for drainage, of 2,000 feet; and an incline of 1,760 feet on the Birkenhead side, at a grade of 1 in 30. The steep inclines are continued in both directions to connect with various stations in the two cities. The tunnel proper has a width of 26 feet and a height above rail of 19 feet. At the stations this is increased to 56 feet 6 inches span, and 32 feet in height, with ample platforms and provision for light and air.

The work was nominally begun soon after the enabling act of Parliament in 1871, but it was not energetically pushed until 1879. Since that time 3,000 men have been kept constantly at work, and no death has occurred for which the contractors have been held responsible. On Jan. 17, 1884, the workmen from Lancashire and Cheshire shook hands under the river-bed.

The Beaumont boring-machine, which scoops out a tunnel seven feet in diameter, was used for the preliminary headings throughout.

Mr. James Brunlees and Mr. C. Douglass Fox were the engineers in charge of the entire work.

The Severn Railway-Tunnel.—Work was begun on this tunnel in March, 1873, by the Great Western Company, and, but for engineering difficulties of a character that could not be foreseen, it would have been completed long before the similar but far less formidable work on the Mersey. It was opened for traffic September 1. At Port Skewett the tidal estuary of the Severn is $2\frac{1}{4}$ miles wide, and the mid-channel depth is 100 feet at high water. The crown of the tunnel is carried 45 feet below the river-bed. From the deepest point the tunnel slopes upward at an incline of 1 in 100 toward the English terminus, and 1 in 90 toward the Welsh terminus. The total length of actual tunnel is about $4\frac{1}{4}$ miles, and at either end are deep cuttings 3,500 yards long. Drainage of more than $6\frac{1}{2}$ miles has to be provided for by pumping power. The geological formation is mainly marls, sandstones and shales with highly inclined coal strata and a very difficult conglomerate of pebbles and boulders. In October, 1879, the original headings had been carried to within 130 yards of junction under the river when a large inflow of water, known as the "big spring," took place on the headway on the Welsh side of the river and filled the works. Simultaneously the wells in the neighborhood ceased to flow, and the river Neddern ran dry. The pumps were of course unable to deal with such a volume of water, and a diver named Lambert

daringly undertook to close a door in the drift-way 330 yards from the shaft. The distance was too great for the ordinary appliances of air-pipes, and for 85 minutes he was entirely cut off from any communication with the surface. He closed the door, and subsequently other openings were closed, so that eventually the spring was confined, upon which the wells and streams resumed their natural flow. Another rush of water occurred on the English side under the river, but this was stopped by puddling with clay. The danger from water was never lacking, and several other serious disasters of this kind were only prevented by watchfulness. In spite of all vigilance another bad break occurred, and 27,000 gallons per minute burst into the tunnel. The doors provided for such emergencies were closed by Lambert, with less danger this time, since the distance was only 150 yards from the shaft, and air-pipe communication could be maintained. The dimensions of the main tunnel are 26 feet wide and 20 feet from rails to crown. The invert arch has a radius of 21 feet 6 inches. Frequent recesses are provided for workmen and tools. The brick-work was largely constructed from bricks made on the spot by the contractor from clay found in course of excavation. The product resembled the blue brick of Staffordshire. The great length of the tunnel necessitates no less than fourteen shafts for pumping and ventilation, and powerful fans are provided to accelerate the air-movement. The engineers in charge of the work were Sir John Hawkshaw and Mr. Charles Richardson, and the contractor since the outbreak of the big spring was Mr. T. A. Walker, of Westminster. The total cost of the tunnel and its accessories was not far from \$10,000,000.

Big Bend Tunnel.—Feather river, California, has afforded, since the early mining days, a rich field for gold-seekers, and the accessible parts of its bed and banks have been pretty thoroughly worked over, with generally remunerative results. In Butte County, however, the river runs through a wild cañon, following a semicircular course for fourteen miles, the current being so swift and the banks so precipitous that prospectors have been able to sample the deposits only under especially favorable conditions. The result of these casual examinations indicated that the whole bend was rich in gold, and surveys made in 1882 showed that a tunnel 12,000 feet long would carry the water of the river from a point above Big Bend to Dark Cañon, down which they would flow, and rejoin Feather river some distance below the bend. This would of course open the river-bed for mining operations. Work was begun in November, 1882, and the tunnel, with a cross-sectional area of 160 square feet, was practically finished in April, 1886. The heading was begun at the lower end and run upward at a grade of 29·7 feet to the mile to within 300 feet of the upper end when the remaining dis-

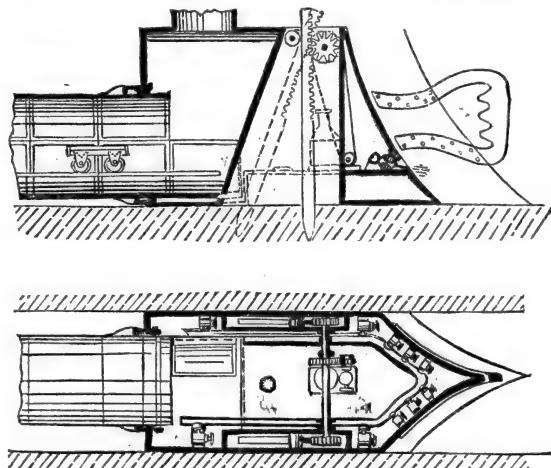
tance was utilized for a steep grade to secure a high velocity for the incoming current. As was anticipated, timber-work was nowhere required, the whole mountain being solid rock, mostly slate, with occasional stringers of quartz and granite, and about 200 feet of very hard dorite. In several places gold-bearing rock was penetrated, yielding \$8 to \$14 per ton. By the end of 1883, nearly 4,000 feet had been finished, and the monthly average varied from 300 to 400 feet, according to the quality of the rock. During the greater part of the time three shifts of 12 men were employed, each working 8 hours. Each shift comprised 1 foreman, 4 drill-men, 4 assistant drill-men, 1 powderman, 1 car-man, and 2 laborers. The permanent outside force consisted of 2 blacksmiths, 2 helpers, 2 engineers, and a number of laborers varying with the requirements of the work. The original plant was a No. 4 Burleigh air-compressor, driven either by steam or water; an air-tank, 4 by 16 feet; a No. 3 Knowles pump; a 2 by 8 Llewellyn heater; an 8-foot Knight water-wheel; a Buffalo drill-carriage, mounting 4 drills, and a tubular boiler 5 by 16 feet. Subsequently there were added 4 Burleigh tunnel-drills, a No. 4 Clayton duplex air-compressor, and a No. 5 Baker blower and engine to run it. The water-power was brought from Dark Cañon through a 11-inch iron pipe, having a vertical fall of 275 feet. The blower was used exclusively to draw smoke and bad air out of the near advanced heading through a pipe, while the air-compressor delivered fresh air in the face of the heading. The two machines were set to work about fifteen minutes before each blast, and kept running until the *débris* was cleared away and the drills again set in motion, when the compressed air used for driving the drills afforded enough fresh air. A two-foot track was laid through the tunnel and the *débris* hauled out by mules. It was estimated that this tunnel would carry the whole volume of Feather river during nine months of the year, but experience showed that it was not large enough to do all that was expected of it. During the progress of the tunnel, extensive preparations were made for working the river-bed and bringing supplies from Oroville; a dam was built at the head of the tunnel, and roads cut along the river-bank and over the mountain wherever needed. The unexpected surplus of water interfered somewhat with working the river-bed, but rich deposits of gold were found wherever the hydraulic engines could be set to work.

Tunnel at Stockholm.—The capital of Sweden is divided in its most populous part by a ridge of rock and gravel about seventy feet high and nearly eight hundred feet wide. Capt. Lindmark several years ago obtained permission to tunnel this hill for the use of foot-passengers, he to levy a charge of two ore (about half a cent) per passenger, for fifty years; the tunnel after that to revert to the municipality. The project was strenuously opposed by owners of

adjacent property and by engineers, who pronounced it impracticable on account of the nature of the soil. Permission was at last granted, and work begun at both sides of the ridge in 1884. No difficulties of an unusual nature were encountered until the western heading having had advanced about forty feet, when a subsidence occurred of such serious character that work was suspended, and Capt. Lindmark decided to freeze the earth before excavating further. A Lightfoot dry-air refrigerator was procured from London and placed in the advanced heading which was temporarily converted into a freezing-chamber by means of board partitions packed with charcoal. In September, 1885, the machine was set in motion, and in sixty hours the gravel was a mass of ice varying from five feet in thickness at the bottom to one foot at the crown of the tunnel. At the floor of the tunnel the temperature was readily kept at -40° , but barely touched $+32^{\circ}$ at the crown of the tunnel. This, however, was hardly an inconvenience, for the roof must have been planked in any event, in preparation for brick-work. The precautionary measure of erecting an iron safety-wall was soon dispensed with, and the gravel was so solidly frozen that it had to be quarried with special tools. During average weather the freezing-machine had to be run ten or twelve hours every night. In very rainy weather a longer time was necessary. The machine was capable of delivering 25,000 cubic feet of air per hour at a temperature of -67° . About eighty feet of the tunnel were driven with the aid of the refrigerating process, at the rate of about one foot a day. During the progress of the work one house settled a little, but no permanent damage resulted. The tunnel was opened for public traffic on June 1.

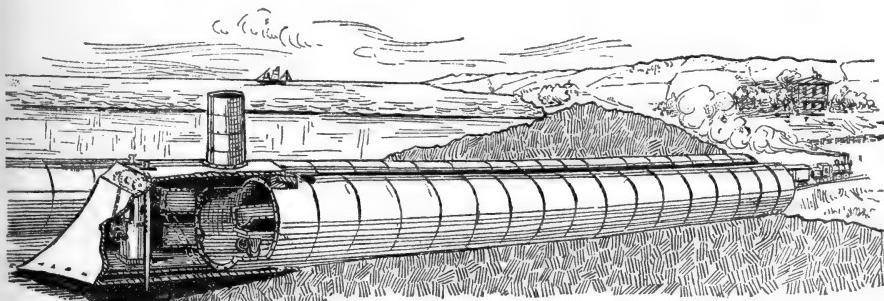
Submarine Tunnels.—Within a few years the demand for tunnels of this character has largely increased, not only for carrying railways

under rivers and estuaries, but for drawing supplies of fresh water for cities from large lakes. The invention here described offers a possible solution for many of the most important projects of modern engineering, such as the tunneling of the Straits of Dover and Northumberland, and for the more perfect water-



ELEVATION AND PLAN OF HEADWORKS, SUBMARINE TUNNEL.

supply of cities like Chicago, Racine, Milwaukee, and other towns situated near large bodies of fresh water. The illustrations sufficiently indicate the general principles that govern the construction. The head-works consist of a water-tight, plow-shaped caisson connected by a stuffing-box with the tube to be laid, and pushed forward by hydraulic jacks set against the end of the tube. As the tube is finished, a track is laid within it, and the segments are carried forward as required and bolted together in the caisson, where there is plenty of room to work the usual appliances for handling heavy weights. As each segment is bolted on, the jacks are set against its forward edge, and, when the ring is complete, the caisson is shoved forward in a trench, dredged out in



SUBMARINE TUNNEL IN COURSE OF CONSTRUCTION.

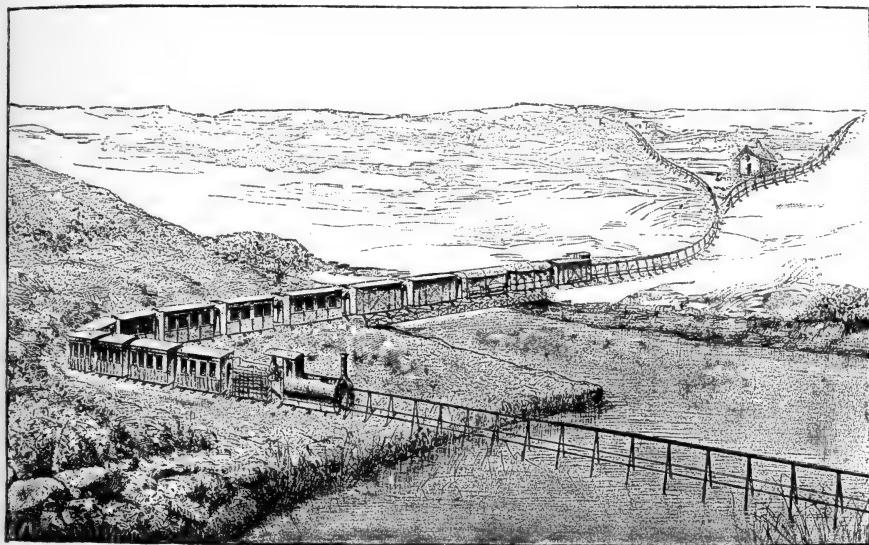
front of it. In very loose ground jets of water under high pressure can be thrown out to loosen the ground in front of the caisson. The direction in which the caisson is moved is under perfect control, and all the parts are loaded so as to overcome the buoyancy. The work may be prosecuted without reference to the weather as soon as deep water is reached. If the tunnel is intended for a water-supply, the caisson may be fitted with interior filters and gates, and left in position to serve as a permanent head-works for the tunnel.

The Poetsch Method of Mining.—An ingenious method of overcoming the difficulties incident to sinking shafts or driving galleries through excessively watery soils has been invented by Mr. Poetsch, a German engineer, and has been successfully used in several instances, notably in the Stockholm tunnel, mentioned elsewhere, and in the Konigs Wusterhausen mine, near Berlin. The method consists in freezing the semi-liquid earth so that it can be excavated by ordinary methods, and without the need of pumping. The congelation is effected by sinking a number of sheet-iron pipes eight and a half inches in diameter, so that they surround the intended shaft at intervals of about five feet. The holes for these pipes are bored or digged, according to circumstances. When in position the lower end of the pipe is hermetically sealed by lowering leaden plugs and pouring cement on top of them. This done, small central tubes are introduced, having openings near the lower end. Into the upper ends of these interior tubes the freezing mixture is poured. It finds its way out through the openings referred to, and ascends through the annular space between the tube and pipe. The liquid becomes heated in its passage at the expense of the surrounding earth, and, after a time, provided the difference of temperatures be sufficient, the pipe becomes incased with a cylinder solidly frozen earth, which gradually increases in diameter until it unites with the frozen cylinder of the next pipe. Thus is formed a frozen wall surrounding the space to be excavated. By waiting long enough, this space may be wholly solidified, but it is more economical to begin work as soon as the separate columns of frozen earth are solidly united. This union occurs first at the lower ends of the pipes, and ascends with greater or less rapidity till it approaches the surface of the ground. Mr. Poetsch used the chlorides of magnesium and of calcium, which latter is cheaper. The solution contains 19 per cent. of the salt, and has a density of 1·17, with a specific heat of 0·9. Under these circumstances it solidifies at about -40° . After passing through the tubes the fluid is conducted to a refrigerating-machine, where it is relieved of the heat absorbed in passing through the earth, and is again ready to repeat the freezing process (see ICE, ARTIFICIAL). Mr. Poetsch has used the Carré machine, which utilizes the affinity of water for ammonia, and

induces a temperature of -25° to -30° . A circulating pump is necessary, with a forcing arrangement, to keep the fluid in circulation, through a system of pipes. The shaft is lined with well-seasoned timber as fast as the work proceeds, so as to relieve the ice-wall from all avoidable strain.

Draining the Plesk Marshes.—About midway between the Baltic Sea and the Black Sea the best maps show a tract of uninhabitable marsh-land, lying on both sides of the Pripet river, a branch of the Dnieper, and crossed by other smaller streams. The area of this marsh is about equal to that of the State of Pennsylvania, and until recently it has been a safe harbor of refuge for many an outlaw. In 1870 the Government, after careful surveys, began the work of reclamation. A large force of engineers and a detail of several thousand troops were sent to the borders of the swamp, and have been at work ever since sinking wells, building bridges, constructing dikes, and reducing the forest-jungle so that hereafter it can be regularly cut over as are all the preserved forests of Europe. About 4,500,000 acres had been reclaimed at the end of 1886. Of this 240,000 acres are excellent meadow-land, 901,966 acres are semi-arable woodland, 499,179 acres of wild forest are accessible through navigable canals, and 2,009,036 acres are good arable land, of which, however, only a small proportion (123,577 acres) are as yet under cultivation. In addition to a large number of canals, drains, and embankments, 179 bridges were built, 572 wells were sunk, varying in depth from 20 feet to 100 feet. This is one of the most praiseworthy feats of engineering ever undertaken by the Russian or any other Government, and is a peaceful victory for which even nihilism should give credit. After the work is finished it should take but a few years to convert the whole region into a prosperous farming district, not to be distinguished from other communes bordering the sources of the Dnieper.

Lartigue's Single Railway.—The general plan of this very simple and economical railway is indicated in the illustration. The unit of construction is an A-shaped frame of angle-iron. A series of these is set up with the legs bolted to sleepers and connected with each other by side-rails and a top-rail, which latter sustains the principal wear and tear of service. The rolling-stock is made to ride upon this structure like a saddle, the main wheels resting upon the top-rail, while side-wheels bearing upon the connecting side-rails prevent undue oscillation or tilting. Single railways are no new thing. Other systems have preceded Lartigue's, notably M. Haddon's; but Lartigue's combines many practical improvements in details, and seems to have reached a limit of economy, and, as it has certainly demonstrated, a high efficiency. In September, 1886, an experimental line was erected in London. In this country none is as yet in operation. Before describing the appliances more in detail,



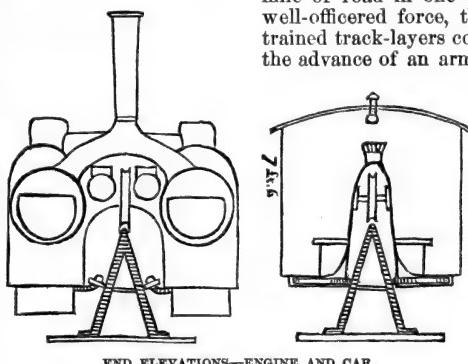
THE LARTIGUE RAILWAY.

it may be well to state what the system has actually accomplished. At the Ria mines, in the Pyrénées-Orientales, there is a line nearly seven miles long over which iron-ore is transported by means of a Siemens motor. The loaded trains in running down generate enough electricity to haul the empty trains up. In Algeria a line more than sixty miles long is in successful operation, and another similar line is authorized in the same neighborhood. These lines are intended to meet the requirements of the esparto-grass industry, and are peculiarly adapted to it, since, when one region has been stripped of esparto, the line can readily be shifted to another. In Russia numerous experiments were made at the camp of the Imperial Guard, near St. Petersburg, with the most satisfactory results. Special rolling-stock adapted for military purposes was used in these experiments. Cars were arranged carrying

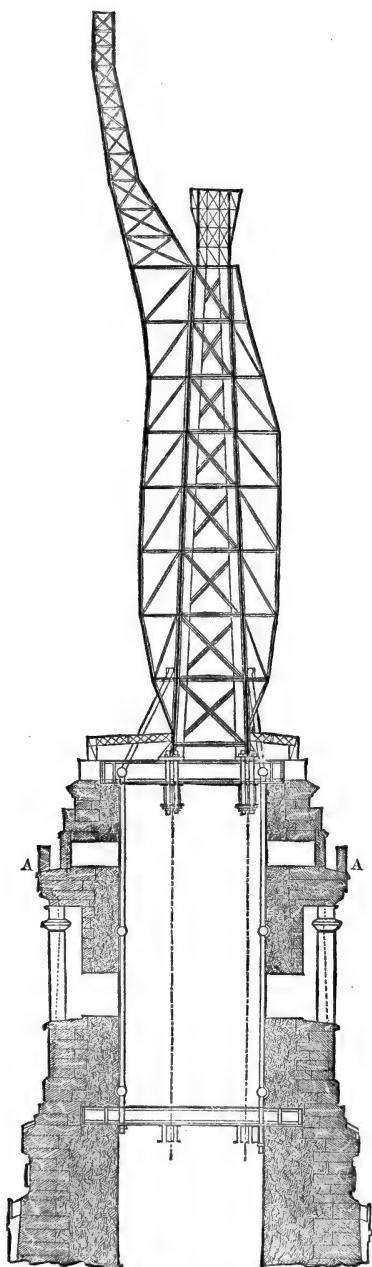
three men on each side of the trestle, and ambulances carrying two stretchers on each side. The line constructed in London is intended for suburban traffic, and it is understood that a similar line will be used at the Paris Exposition of 1889. The principal framework of the cars is a solid wrought-iron bar bent so as to

conform to the shape of the trestle, having due regard to the disposition of bearing and side wheels. This bar is further adapted to receive the flooring, seats, and other necessary appendages. The engine has two boilers, vertical or horizontal, one on each side of the trestle-rail. It ascends a grade of 1 in 10 with a train of several loaded cars, and without using the cogged drivers provided for very steep gradients. The advantages of this system of construction are many and obvious. In practice it was found that eight men could lay about a mile of road in one day. With a large and well-officered force, therefore, a battalion of trained track-layers could almost keep up with the advance of an army, or could at least establish communication with permanent railway lines within a few hours. The importance of such a readily established means of transportation for men and material in modern warfare can hardly be overestimated; but its importance as an auxiliary to permanent railways in time of peace is vastly greater.

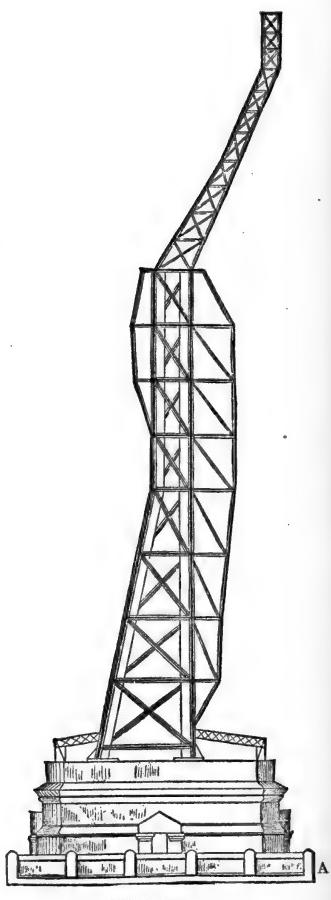
The ease with which it ascends steep gradients, turns sharp curves, and adapts itself to the ordinary irregularities of an average country, does away with a very large percentage of the expense attendant upon ordinary railway construction. It is not impeded by snow, nor is it likely to be interrupted by wash-outs. For mining pur-



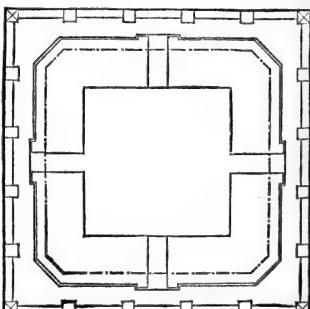
END ELEVATIONS—ENGINE AND CAR.



Front Elevation and Section of Pedestal.



Side Elevation.



Sectional Plan of Pedestal at A.

THE STATUE OF LIBERTY IN NEW YORK HARBOR. ENGINEERING CONSTRUCTION.

poses or for lines connecting suburban districts with cities it appears to possess peculiar advantages. As has been intimated, either electricity or steam may be used for the motor; but even with mule- or horse-power the system is found to offer advantages over ordinary roads and tramways. Experiments have fixed the coefficient of adherence at one fifth with 14-inch driving-wheels. A locomotive weighing 2,200 pounds, therefore, exerts a tractive force of 440 pounds, and, considering the size of the drivers, this is no mean performance. With larger drivers the tractive efficiency might be indefinitely increased. With a steam pressure of 100 pounds to the square inch, such an engine will haul, at a speed of 6 miles an hour, about 70 tons on a level, 18 tons on an incline of 1 in 100, 9 tons on an incline of 1 in 50, and 6 tons on an incline of 1 in 33. With a lighter load a speed of 10 or 15 miles an hour may be safely attained, and with heavier rolling-stock and equipment, such as would naturally be used in actual service, a still higher speed and heavier loads can be handled.

Bartholdi's Statue of Liberty.—In its picture-sque aspects, this remarkable work of art is fully described elsewhere. Its construction, however, involves numerous problems that belong to the engineer rather than to the artist. The external contour of the figure, as it appears to the spectator, consists of copper plates about $\frac{1}{2}$ of an inch thick, and incapable of sustaining for a moment even the mere constant of gravity, not to mention the possible strains of wind-pressure from any direction. The stiffening framework was begun by lining each separate section of the statue with a network of iron bars ($\frac{3}{4}$ by 2 inches) bent so as to conform closely to the curves of the figure. These bars were fastened to the sections by copper bands, riveted in place, and from them, at thousands of points, the strains were distributed to the central supporting frame. The general form of the frame is shown in the two elevations (front and side given herewith). It consists of four heavy corner-posts of angle-iron, joined by horizontal angle-pieces, which divide it into panels, further strengthened by diagonal braces and by struts which are extended so as to approximate more closely the contour of the figure. The extensions, again, are united by braces and girders, and, on one side of the figure, are carried up into what may be termed a "flying truss," to support the arm and torch. In this arm-truss, it will be seen, the panels become smaller and the bracing correspondingly lighter. The whole of the frame was designed and put together in Paris by the consulting engineer, M. Eiffel. It was taken apart and shipped to America after having sustained the required tests.

The engineering work connected with the base and pedestal was intrusted to the late Gen. C. P. Stone, formerly an officer of the U. S. Ordnance Corps. The architectural design of the pedestal was furnished by Richard M. Hunt.

The site of the statue is Bedlow's Island, the property of the United States Government, and occupied by a star-fort with barracks, built early in the century, and constructed in the most durable manner. Part of the parapet was temporarily removed to make room for a tramway leading up from the wharf. The terre-plein of the fort was excavated to the natural soil of stiff clay, gravel, and boulders, and upon this was built up a solid block of concrete, probably the largest in the world. It is 90 feet square at base, 65 feet at top, and is 52 feet 10 inches high. There is a central well-hole 10 feet square leading to four divergent archways at the extreme base. Surrounding the base is a concrete arch 3 feet 6 inches thick, and having a cord-span of 49 feet. This arch supports the ornamental exterior slope of grass and the four flights of steps leading to the terrace which forms the top of the concrete, and upon which rests the massive masonry of the pedestal proper. The vertical section and plan in the diagram show the essentials of construction. The pedestal is a stone tower 43 feet 6 inches square at top, with the corners cut off to form an octagon. The central shaft, 26 feet 6 inches square, descends to the terrace, and contains the anchorage-works that hold the statue in position. At about 25 feet from the terrace a system of plate girders, 41 feet long, is built into the masonry. The girders are 4 feet deep, and made of $\frac{5}{8}$ -inch web-plate and heavy angle-irons. At the top of the pedestal is a second similar system of girders, 34 feet long, extending across the well-hole. The two systems of girders are joined by four sets of eye-bars each composed of four bars $1\frac{1}{2}$ by 4 inches. They are carried close to the masonry, and incline inward when they clear the top of the pedestal, joining the central frame of the statue at the junction of the first and second panels. Since the completion of the statue it has borne wind-storms of great violence, and from opposite directions, the velocity of the wind registering as high as 75 miles an hour, with an attendant pressure of not far from 15 pounds per square foot of surface. Under such conditions the oscillation even of solid masonry is plainly perceptible, and of course that of comparatively yielding metal must be at least as great. In point of fact, it was rather less than had been anticipated by the engineers. The statue is far greater than any in the world of composite construction. In India larger figures exist, hewed from solid rock, in place, and not to be considered in any sense as engineering work. The total weight of the Liberty Statue is 440,920 pounds, of which 176,368 are copper, and the rest iron and steel.

ENVELOPES. See PAPER BAGS AND ENVELOPES.

EVENTS OF 1886. In the United States, the labor troubles were the most important and significant events of the year. They involved not only the interests of capital and labor, but

made it necessary in several instances to call out the State militia in different sections of the country, and at one time the General Government was obliged to furnish regular troops to escort the mails. In politics, too, the labor organizations have developed unprecedented strength, polling in New York city alone more than 68,000 votes for their favorite candidate. A special paper on the strikes of the year will be found in its proper place. In Europe, too, the labor agitation, combined, as in America, with threatenings of socialism and anarchy, has held a marked prominence in the history of the times. The abduction and forced abdication of Prince Alexander of Bulgaria, and the consequent complication of affairs in the Balkan states, point to the need of wiser diplomacy on the part of the European powers than has thus far obtained. In France, the expulsion of the Orleans princes was one of the most conspicuous incidents of the year. In England the defeat of Mr. Gladstone in a direct appeal to the people on the test question of the Irish land bill was the most important political event. The United States experienced the severest earthquake-shock that has occurred since the settlement of the country, and they were visited by an unusual number of violent storms. The list of events that follows affords a journal of the world's history during the year, omitting "Disasters," which will be found under that heading:

January 1. David B. Hill (Democrat) inaugurated Governor of New York at Albany, and Fitz-Hugh Lee (Democrat) Governor of Virginia at Richmond. Annexation of Burmah, and proposed cession to China of the upper part of the province, announced by the British Government. Revolutionary disturbances in Spain; the revolutionists attempt to destroy a railway-bride, but are prevented, and some of them captured. Revolutionists gain control of the city of Matamoros, Mexico.

2. The Council of the Cherokee nation passes resolutions denying the jurisdiction of the United States over Cherokee lands. Bulgaria and Eastern Roumania agree to form a union.

4. Celebration at Berlin of the twenty-fifth anniversary of the accession of William III to the throne of Prussia. Women vote for the first time in Toronto, Canada. Greece protests against the union of Bulgaria and Roumania. Riotous proceedings in the Congress at Santiago de Chili.

5. Congress reassembles after the holiday recess; 790 bills introduced in the lower House. Great damages by flood throughout the northern tier of the United States. The Supreme Court of Connecticut decides that students of Yale College, resident in New Haven only as such, are not entitled to vote. Edmund L. Pitts chosen President of the New York State Senate and Gen. James W. Husted Speaker of the State Assembly. Hostilities between Orangemen and Catholics at Conception Bay, Newfoundland. Treaty of peace ratified between the French in Madagascar and the native tribes with whom they have been at war.

6. A native claimant of the Burmese throne threatens the English forces at Mandalay. Forty alleged Nihilists arrested in Russia.

7. A new French Cabinet announced with M. de Freycinet as President of the Council. In the House of Representatives Speaker Carlisle announces the committees.

8. New York Board of Aldermen of 1884 are charged

with having granted a charter to the Broadway Street Railroad in consideration of \$300,000, equally divided among them. A French missionary and 500 native Christians massacred in Annam. The Utah bill passed by the Senate. A meeting of 5,000 unemployed persons in Glasgow, Scotland. No Socialistic measures proposed. It was determined to petition the wealthier classes to devise methods of relief. Russia refuses to guarantee the independence of a union between Bulgaria and Eastern Roumania.

9. The Jesuits are expelled from Monaco.

10. Servia, Bulgaria, and Greece are required to disarm by the European powers, with the understanding that Turkey shall do likewise. Spanish protocol signed regarding the occupation of the Caroline Islands.

11. At a meeting of Irish Nationalists in Dublin it was resolved to continue the struggle for the rights of Ireland. German man-of-war "Albatross" occupies the principal port of the Samoan Islands. The German Emperor signs spirits monopoly bill. Spanish republican rebels seize one of the forts at Cartagena, and make their escape when threatened by troops. John B. Foraker inaugurated Governor of Ohio.

13. John Sherman re-elected United States Senator from Ohio. M. Floquet re-elected President of the French Chamber of Deputies. Burmese natives in strong force threaten to attack the British at Mandalay. Nine Democrats representing Hamilton county, Ohio, in the Ohio House of Representatives, adjudged to have been illegally elected, and nine Republicans installed in their places. British Parliament opens. Prussian Diet opens. Capt. John G. Walker, U. S. N., is confirmed by the Senate as chief of the Bureau of Navigation. Appointments confirmed of more than 150 postmasters.

14. The Bavarian Cabinet resigns.

15. President Grévy signs a decree granting amnesty to persons convicted of political offenses against France since 1870. Water-famine in Cleveland, Ohio.

18. Judicial salary bill passed by the Senate.

19. An alleged murderer lynched by masked men in Indiana. Irish Land League meets in Dublin. The presidential succession bill as proposed by Senator Hoar, of Massachusetts, having passed the House, January 15, is signed by the President. Cigar-makers in New York to the number of 8,000 refuse to accept a new pay schedule, and are locked out by the manufacturers.

20. Official opening of the Mersey river tunnel, connecting Liverpool and Birkenhead, England.

21. Capt. Emmet Crawford, U. S. A., while pursuing a band of Apache Indians, is killed in an encounter with Mexicans.

25. Gen. Barillas elected President of Guatemala.

26. In the British House of Commons the Salisbury Government suffers defeat. Annual convention of the National Guard of New York State.

27. New York State Senate orders inquiry into the Broadway Railroad franchise. Resignation of British Cabinet.

28. Exposure of the Pan Electric scandal.

30. Supreme Court of New York decides that the projectors of the Broadway Railroad Company must stand examination. Schaefer beats Vigneaux in contest for billiard championship.

31. M. Grévy, President of the French Republic, enters upon his second term of seven years.

February 8. New British ministry announced, with Mr. Gladstone as Premier.

4. Strike for twelve hours a day on several of the principal railroads in New York city; demands of the strikers ultimately granted.

6. Senate investigation of the Broadway franchise begins. Cholera at Tarifa, Spain.

8. Socialist disturbances in London, with rioting in Trafalgar Square; demonstrations continue several days. Anti-Chinese agitation in Alaska.

10. Spanish Republic; its thirteenth anniversary celebrated at Madrid.

17. New Jersey Senate passes a bill to prevent the bridging of Arthur Kill by the Baltimore and Ohio Railway. New York Superior Court restrains transfer of Broadway Railway stock to Philadelphians.

18. Bismarck's spirit monopoly bill passes the Bundesrath.

20. Strike of the Pennsylvania coke-workers ends in favor of the workmen.

21. A Chinese mandarin traveling on business is refused permission to land in San Francisco, and is sent back to China.

22. Balkan Peace Conference adjourned.

28. Servia refuses to sign a treaty of peace with Bulgaria.

March 1. Rioting in Chicago in consequence of labor troubles in the McCormick Reaper-Works.

2. Strikes on the Texas Pacific Railroad and on street-railways in New York city.

3. Brig.-Gen. A. H. Terry, U. S. A., is promoted in place of Maj.-Gen. Hancock, deceased. Pope Leo XIII celebrates his seventy-fifth birthday, and the eighth anniversary of his coronation.

5. Greece calls out her reserves in expectation of war with Turkey. Strike of the New York street-railways ends practically in favor of the men. A motion denouncing the House of Lords is defeated in the House of Commons by a vote of 202 to 106.

6. General strike inaugurated on the "Gould system" of Southwestern railroads; several lines blockaded.

10. General lockout of knit-goods manufacturers at Cohoes, N. Y. A committee from the United States Senate investigates the Pan-Electric scandal. Strike of coal-miners in Pennsylvania.

14. Great Socialistic meeting in Glasgow, Scotland.

15. Mr. Gladstone announces his plan for the better government of Ireland. Morgan art collection, including the famous "peach-blow vase," sold in New York for \$1,207,052.

16. New York city aldermen enjoined by Judge Lawrence from passing over the mayor's veto a bill authorizing the wholesale construction of cable-railways in New York city. W. L. Trenholm nominated for Comptroller of the Currency in New York State.

17. Electoral count bill passes the Senate. Both houses pass bill granting a pension of \$2,000 to the widow of Gen. Hancock. Treaty of peace ratified between Servia and Bulgaria.

18. Henry W. Jaehne is arrested for complicity in the Broadway Railroad case. Prince Alexander confirmed by all the European powers except Russia as Governor for life of Eastern Roumelia.

20. American fishermen off Canadian coast warned not to transgress the Treaty of 1818.

21. Geronimo, chief of the Apaches, surrenders to United States troops under Lieut. M. P. Maus.

22. Strike becomes general on the Western rail-ways. Ex-Alderman Jaehne indicted for bribery and imprisoned. Troops are called out to suppress Anarchist riots in Belgium.

23. Twelve locomotive-engines disabled by strikers at Kansas City, Mo.

24. Rioting at St. Louis, Mo.

26. United States troops sent to St. Louis and elsewhere to protect mails in transit against rioters.

27. Many Anarchist rioters killed in an encounter with troops in Belgium. The Hon. James Stansfield and the Earl of Dalhousie appointed to the Cabinet of Great Britain in place of Messrs. Chamberlain and Trevelyan, resigned. A bill establishing a Government monopoly for the manufacture of distilled spirits, proposed by Prince Bismarck, rejected by the German Reichstag, 183 to 3.

29. Mineral oil discovered in Louisiana.

30. Two trains wrecked by strikers on Missouri Pacific Railway.

31. The German Anti-Socialist law, about to expire by limitation, is prolonged for two years by the Reichstag, 173 to 146. Strikers ordered back to work

by officers of Knights of Labor. Geronimo escapes from his guard. Gen. Carceres elected President of Peru.

April 1. Railway strike renewed because the railroads refused to take back all the strikers. Belgian revolutionists resume their demonstrations. The Senate votes \$500,000 for a monument to Lincoln to be erected in Washington.

2. Ex-Alderman Waite makes a confession in regard to the Broadway Railroad case.

3. The House passes a labor arbitration bill.

4. Texas militia defeat railroad strikers.

5. The House votes \$550,000 for a Congressional Library building and the Mexican War pension bill.

6. English university boat-race. Cambridge defeats Oxford.

7. George P. Wetmore re-elected Governor of Rhode Island, with the rest of the Republican ticket. A prohibition amendment to the State Constitution adopted by a popular vote. The lower house of the Prussian Landtag passes a bill expropriating Polish landholders in Posen and colonizing the province with Germans. The Senate rejects a bill to increase the United States Army to 30,000 men. Rioting in East St. Louis depots. Gen. Don Bernardo Soto elected President of Costa Rica. Political riot in Texas.

8. The House rejects the free coinage bill. The Italian ministry resigns. George Hearst appointed United States Senator from California in place of John F. Miller, deceased. Caleb W. West, of Kentucky, appointed Governor of Utah, in place of Eli H. Murray, resigned. Senate approves House Library appropriation bill of April 5. Central Labor Union resolves to boycott Jay Gould.

9. Conflict and loss of life between strikers and deputy-sheriffs in East St. Louis.

13. Wholesale arrests of the New York aldermen engaged in the Broadway Railroad bribery scheme.

14. Knights of Labor declare war against the Gould system.

16. Strike on Third Avenue Railway, New York city. Mr. Gladstone's Irish land bill proposed in House of Commons.

18. The Bishop of Madrid is assassinated by a deposed priest.

19. Strikes on nearly all the New York city rail-roads. Conflicts with the police.

20. End of New York street-car strikes except on Third Avenue.

21. Greece is notified by the European powers that she must disarm. Grand Army of the Republic holds its twentieth annual encampment in New York. Broadway Railroad charter annulled by the State Legislature.

22. Seven indictments against bribers of the New York aldermen. Strike ends at Chicago. The President recommends the creation of a commission of labor to consider and settle, when possible, all conflicts between labor and capital. Mr. Gladstone's Irish land-purchase bill is published.

23. Church of San Luis, at Madrid, blown up.

28. Comet discovered in Cassiopeia.

29. Greece declines to accede to the demand of the powers (April 21). Volcanic eruption in Java.

May 1. Strike for eight-hour system in the Northwest. Partial success of strikers. Great labor demonstration in Union Square, New York.

3. Knights of Labor declare the strikes against the Gould system at an end. Bloody conflict between strikers and police in Chicago.

4. Anarchist riots in Chicago. Dynamite used by rioters, killing six policemen and wounding sixty-one. Many rioters killed. Burmese insurgents burn a large part of the city of Mandalay. Opening of the Indian and Colonial Exhibition in London.

5. Anarchist riots in Milwaukee. River and harbor bill, appropriating \$15,000,000, passed by the House.

6. Greece withdraws her ambassador from Turkey.

7. American schooner David J. Adams seized by the authorities of Nova Scotia for alleged infraction of Canadian fishing laws.
9. The fleets of the European powers blockade the Greek coast.
10. Trial of ex-Alderman Jaehne begins in New York.
12. A new Greek Cabinet is formed. Spanish senatorial elections result in a ministerial victory.
16. Ex-Alderman Jaehne found guilty of bribery.
17. American schooner Ella M. Doughty seized by Canadian authorities for alleged violation of fishery laws. An heir born for the Spanish throne.
18. Archbishop Gibbons, of Baltimore, is made a cardinal. Cincinnati musical festival opened.
19. Pension bill passed.
21. Fighting between Greeks and Turks.
22. Marriage of the Crown-prince of Portugal and Princess Marie Amélie of Orleans.
25. Knights of Labor meet in general assembly at Cleveland, Ohio.
26. Cornell University receives \$1,500,000 by will from Mrs. Prof. Fiske. Ormonde wins the Derby.
28. New gold-fields discovered in Australia.

June 1. Strike of Philadelphia carpenters. French flag hoisted in the New Hebrides.

2. Marriage of the President of the United States and Frances Folsom, of Buffalo, N. Y., in the Executive Mansion at Washington. Dundee made an open port for foreign cattle.

3. Gen. Carrereis inaugurated President of Peru. Yellow-fever epidemic at Colon. Buddenseik sentenced to ten years' imprisonment for building insecure houses.

4. Chinese indemnity bill passed by the Senate. Rioting in Belfast. Election in Oregon—Sylvester Pennoyer (Democrat) chosen Governor, with part of State ticket. Legislature Republican on joint ballot.

5. Street railroads of New York city stopped by order of the Knights of Labor.

7. In the House of Commons the Government is defeated on the Home-Rule bill (311 to 341). The House of Representatives modifies the pre-emption timber-culture and desert-land laws, and the homestead laws.

8. Nelson W. Aldrich re-elected U. S. Senator from Rhode Island.

10. More rioting in Belfast; fighting and bloodshed.

11. The French Chamber of Deputies by a vote of 315 to 232 passes the Princes Expulsion bill (*le projet de loi sur l'expulsion des princes*).

13. Ludwig II, King of Bavaria, commits suicide by drowning himself in Starnberg Lake, near the Berg Castle. His attending physician, Dr. Gudden, also drowned, probably in attempting to prevent the King's suicide.

18. Civil service is confirmed by the United States Senate. Mr. Vance's motion to repeal lost by a vote of 33 to 6. Mr. Frye's bill to encourage the American merchant marine and promote postal and commercial relations with foreign countries passes the Senate. An amendment to the Constitution of the United States, extending the President's term of office, passes the Senate by a two-thirds vote in the form of a joint resolution to be submitted to the people; also extending the session of the Fiftieth Congress to April 30, 1889, and substituting April 30 for March 4, for the beginning of presidential and congressional terms.

20. Funeral of Ludwig II, King of Bavaria, at Munich.

21. Extradition treaty with Japan ratified in the Senate. Resurvey of boundary between the United States and Mexico approved by the Senate. The Canadian Roman Catholic bishops forbid Catholics to join the Knights of Labor. Naval appropriation bill passes the House (\$12,930,034). Parsons, one of the indicted Chicago Anarchists, surrenders himself in court.

22. A new law in regard to imprisonment for debt goes into effect in New York, and many debtors are set free. An association of Socialists discovered in Ottawa. The French Chamber of Deputies passes a bill fixing an extra tax on cereals by a vote of 302 to 227—this in opposition to the wishes of the Government. Prince's expulsion bill passes the French Senate by vote of 141 to 107.

23. Decree of banishment issued in France against the hereditary princes Victor and Jerome Napoleon, and the Comte de Paris, all of whom soon departed, going respectively to Brussels, Switzerland, and England.

25. British Parliament prorogued, in order to test popular opinion on the Irish Home-Rule question. A proposition looking to a literary convention with England passed by the German Reichstag.

26. Adjournment of German Reichstag. Its last act was to reject Bismarck's brandy-tax bill. The French Chamber of Deputies rejected, by a vote of 242 to 216, a proposition to abolish the use of titles by the nobility.

28. Prince Luitpold declared Regent of Bavaria in place of the hereditary King Otto, who is mentally incapable of reigning.

29. An asteroid of the eleventh magnitude discovered by Dr. Peters at Hamilton College.

30. Canadian Pacific Railway opens for regular traffic. Pensions paid by the United States during the fiscal year ending this day, \$63,797,831.61, with 365,788 names on the rolls. Cuban autonomy declared by the Cortes incompatible with the established Government of Spain; a majority of 200 was cast in favor of this decision. Elections in Holland resulted in a Liberal gain, the Chamber now standing 47 Liberals and 39 anti-Liberals. Cardinal Gibbons is officially invested with the beretta at Baltimore.

July 1. Parliamentary elections begun in Great Britain. The President signs the bill restoring to Fitz-John Porter his rank of general in the army. Reunion of war veterans on the battle-field of Gettysburg.

2. Harvard-Yale boat-race at New London, Conn. Yale wins. Discovery of oil near Corry, Pa.

3. Naval appropriation bill passes the Senate reduced by \$46,500. Base-ball, Harvard-Yale match—Yale wins.

5. Portland, Me., celebrates its centennial.

6. Six boycotters in the Landgraf case convicted and sentenced in New York. More than 100 rioters wounded at Cardiff, Wales.

11. Niagara rapids (below the falls) passed by C. D. Graham in a cask constructed for the purpose.

12. International chess tournament in London.

14. Morrison resolution passed by the House. (See July 30.) New extradition treaty signed between United States and Great Britain.

15. Regatta of the American Steam Yacht Club; Larchmont to New London; winners in their respective classes, Atlanta, Lagonda, Nereid.

19. Bi-centennial celebration of the settlement of Albany, N. Y.; lasts several days. Fortifications bill (\$620,000) passed by House. (See July 28.)

20. Oleomargarine taxed two cents a pound by action of House (Senate concurs July 23).

21. Mr. Cutting, an American citizen, arrested in Mexico for an act done in the United States. Monsignor Tascherau installed Cardinal of the Roman Catholic Church at Quebec, Canada. Elections in Great Britain having resulted unfavorably to the Liberal party, Mr. Gladstone, the Premier, retires from office, and Lord Salisbury is appointed to succeed him. The elections in Great Britain returned to the House of Commons 316 Conservatives, 78 Union Liberals, 191 Gladstone Liberals, 85 Parnellites.

23. A boy purposely jumps from the East River Bridge in mid-stream, and is not injured—height 135 feet.

24. Blenheim collection of paintings sold in London.

26. Riots in Amsterdam, lasting two days; cause—prohibition of popular games on Sunday. Military called out; 20 killed, 80 wounded.
27. Court of Claims begins settlement of the Alabama depreciation cases.
28. Cigar-makers to the number of 3,500 locked out by manufacturers in New York. The Spanish Cortes passes a resolution recommending the liberation of the 26,000 slaves still held in Cuba. (See Oct. 27.) Rollin M. Squire, Commissioner of Public Works in New York city, arraigned by the mayor. Fortification bill passed by Senate.
30. Morrison resolution providing for disposing of the Treasury surplus passed by the Senate. Any surplus above \$100,000,000 to be used for the redemption of United States bonds, whenever such surplus exceeds \$10,000,000 (not signed by the President). Interstate commerce bill (Reagan's) passed by the House.
31. Alien landlords bill passed by House. Pensions to veterans wounded in arm, hand, leg, or foot, increased 25 per cent, by vote of the House.
- August 1.** Elections in France; 847 Republicans, 411 Conservatives returned; second elections required in 177 districts. An aerolite, weighing 90 pounds, fell near Sandusky, Ohio. Letter published showing that Street Commissioner Rollin M. Squire, of New York, made a corrupt political bargain with a contractor on the Croton Aqueduct. Mexico decides to try Cutting for an offense committed in the United States.
2. The University of Heidelberg celebrates its 500th anniversary. The President signs the oleomargarine tax-bill. Election in Alabama; Thomas Seay and the entire Democratic State ticket elected. New ships bill passed by the House. Secretary of State Bayard submits to Congress the correspondence in the Cutting case. Fitz-John Porter reinstated in the United States Army, with the rank of colonel, after twenty-two years under sentence of dismissal for disobedience of orders.
3. The new English ministry receive the seals of office; for list of the ministry, see GREAT BRITAIN. River and harbor bill adopted in joint conference. Snow fell in eastern New England. Grand Army of the Republic holds its annual national encampment in San Francisco. A. P. Williams (Republican) elected United States Senator from California.
4. Trial of Commissioner Squire begun in New York.
5. Gold discovered near Abington, Mass. Adjournment of Forty-ninth Congress at the end of its first session. Total number of bills and joint resolutions: House, 10,223; Senate, 2,974; passed, 987; bills, originating in the House, 746, and 241 in the Senate. The President vetoed 115 bills, mostly private pensions and public buildings; the total of the appropriations were \$264,733,579.
6. Cutting found guilty by a Mexican court, and sentenced to pay \$600 fine and suffer one year's imprisonment.
7. Riots in Belfast, Ireland, lasting three days, between the opponents and advocates of Home Rule; 18 killed, 130 injured.
8. Two men pass the Niagara whirlpool in a cask.
9. Collector of Customs Hedden, of New York, resigns.
10. Daniel Magone, of Malone, N. Y., is appointed collector of customs in New York city. Maurice B. Flynn and Commissioner Rollin M. Squire indicted for conspiracy in New York city. Lock-out of 4,000 factory operatives in Augusta, Ga.
12. Strike in Chicago stock-yards.
14. Gen. Sedgwick is sent to Mexico as a special envoy in the Cutting case.
15. New Anglo-Spanish treaty goes into effect.
16. Petroleum discovered in France.
19. Irish National League meets in Chicago. James C. Scott killed in an attempt to swim Niagara rapids in a cork jacket. Cholera epidemic in Italy.
20. Seven Chicago Anarchists found guilty of murder and sentenced to be hanged, and one to be imprisoned for life.
21. Prince Alexander, of Bulgaria, forced to abdicate by conspirators. W. J. Kendall survives the passage of Niagara rapids in a cork vest.
23. Exposition at Minneapolis opened, the machinery being set in motion by Mrs. Grover Cleveland by telegraph from the Adirondack woods in New York. Cutting released by the Mexican authorities because the plaintiff did not appear against him; Mexico offered no abatement of the law holding foreigners responsible for offenses committed outside of Mexican jurisdiction. Prince Alexander returns to Bulgaria, and is recrowned by the officers of the army.
25. Gen. John Newton, United States Engineer Corps, appointed Commissioner of Public Works in New York city.
29. Monster demonstration of Socialists in London; the police fail to disperse the crowd.
- September 1.** American schooner Everett Steele seized by the Canadian authorities for violation of the fishery laws.
4. Prince Alexander again forced to abdicate by the Czar of Russia. Geronimo's band of Apache Indians surrenders to Gen. Miles in Arizona.
6. Election in Arkansas; Democratic majority, 20,000.
7. Election in Vermont. Republican majority, 18,000. Bi-centennial of Woodstock, Conn. International yacht-race for the America's cup. Contestants: Mayflower (American), Galatea (British). The American boat wins (second race with same result, Sept. 11).
10. Irish land bill of Mr. Parnell read for the first time in the House of Commons. Natural gas discovered near Ellenville, N. Y.
13. English fishing-boats seized by French authorities. Election in Maine. Republican plurality, 13,000; Joseph R. Bowdoin chosen Governor.
15. Cholera epidemic in Austria.
18. Yacht-race off Newport, R. I. Winners in their respective classes: Sloops, Mayflower; schooners, Gitana; second-class sloops, Thetis; third-class sloops, Clara.
19. Knights Templar hold their triennial conclave in St. Louis.
20. The Mayor of Philadelphia impeached by the Common Council.
21. Irish land bill (Mr. Parnell's) defeated in the House of Commons (202 to 297). Strike of 90,000 cotton-spinners in England.
22. Labor riot at Peabody, Mass.
23. Henry George nominated for Mayor of New York by the Central Labor Union, and indorsed by 60,000 individual nominations sent by postal-card. Battle between the French and Chinese pirates near Hooloo, Tonquin; 500 pirates reported killed.
24. The Corporation of Cork, Ireland, refused an address of welcome to the Lord-Lieutenant.
30. Jefferson Davis publishes a letter charging Gen. Sherman with falsehood. Pleuro-pneumonia among cattle in Chicago; \$75,000 worth slaughtered. Plot frustrated to blow up the Russian Czar. Bulgaria refused Russia's ultimatum. Prussia and the Vatican sign an agreement regulating the management of ecclesiastical affairs within the kingdom.
- October 1.** The Third Avenue Elevated Railroad—the busiest in New York city—reduces its fares from 10 cents to 5 cents. American sloop Thetis beats English cutter Stranger in a race off Marblehead.
4. Knights of Labor hold their convention at Richmond, Va., and are addressed by Governor Lee. Silver certificates (\$1) issued by the United States Treasury.
5. English cutter Stranger beats American sloop Thetis in a race off Marblehead. Court of Appeals affirms the sentence of Alderman Jaehne.

6. General John B. Gordon, Democrat, chosen Governor of Georgia; no opposition.
 8. Chicago packing-houses announce a return to the working-day of ten hours. General strike of the employes ordered. Plot frustrated to assassinate the Emperor of Austria.
 9. Chicago Anarchists sentenced to be hanged. A new Spanish ministry formed.
 11. Wholesale arrests of Chicago Anarchists.
 12. Judge Wallace, of New York, affirmed the legality of city tax on national-bank shares.
 13. Mexico appropriates \$6,000,000 to drain the valley surrounding the capital.
 16. Protestant Episcopal Church holds its General Convention at Chicago; it refuses to drop the word "Protestant" from its official title.
 18. Strike at Chicago ends; pork-packers accept the ten-hour schedule. Arrest of Jacob Sharp and others for complicity in the Broadway Railroad bribery case in New York; bail, \$50,000.
 19. George F. Edmunds re-elected United States Senator from Vermont.
 21. The President visits the Agricultural Fair at Richmond, Va.
 23. Inman Steamship Line sold for \$1,000,000.
 25. Geronimo and 14 Apache warriors remanded to Fort Marion, St. Augustine, Fla. Brotherhood of Locomotive Engineers meet in New York city.
 26. Robbery of an express-car near St. Louis, Mo.; \$100,000 taken.
 27. Queen Christina of Spain signs a decree liberating the Cuban slaves. Yale College is formally declared to be a university by act of its corporation. King Otto of Bavaria officially declared insane. Bartholdi's Statue of Liberty Enlightening the World, on Bedlow's Island, New York Harbor, is unveiled, with due ceremony, in the presence of a delegation from France, including the artist and a great number of officials.
- November** 1. Louis Napoleon, one of the exiled French princes, visits Washington. The British Colonial Office forms a new province of the western part of Zululand.
 2. Elections held in California, Colorado, Connecticut, Delaware, Kansas, Massachusetts, Michigan, Minnesota, Nebraska, Nevada, New Hampshire, New Jersey, Pennsylvania, South Carolina, Tennessee, Texas, and Wisconsin. (For particulars, see special articles on the different States.) In New York city Abram S. Hewitt, Democrat, was chosen mayor, receiving 90,552 votes; Henry George, the Labor candidate, received 68,110; and Theodore Roosevelt, Republican, 60,435.
 3. Methodist Missionary Board appropriates \$1,050,000 for missions.
5. George W. Baxter appointed Governor of Wyoming Territory.
 7. Militia called out in Chicago.
 9. Riots in stock-yards in Chicago; mob dispersed by militia and detective officers.
 10. Waldemar, son of the King of Denmark, elected by acclamation Prince of Bulgaria; he declines the honor.
 11. Prince and Princess Komatsu of Japan sail for Europe. Government suit against the Bell Telephone Company dismissed.
 13. Strikers at Chicago ordered back to work by Master-Workman Powderly.
 15. Trial begins of Alderman McQuade for bribery in connection with the Broadway Railroad franchise.
 18. Colonel John Moore appointed Surgeon-General U. S. A.
 19. Fullgraff and Duffy, two of the accused aldermen in the Broadway Railroad case, make full confessions in court.
 24. The McQuade jury disagrees; new trial ordered. Ex-Gov. Person C. Cheney appointed United States Senator from New Hampshire, in place of A. F. Pike, deceased.
 25. Opening of the German Reichstag.

December 1. The Spanish Cortes unanimously votes a credit of \$45,000,000 to improve the navy.

3. French ministry resigns.
 4. New French ministry formed, with M. René Goblet at its head.
 6. Congress meets.
 9. Bulgaria, Servia, and Roumelia form an offensive and defensive alliance, with a joint army of 400,000 men.
 10. Rev. Dr. McGlynn, of New York, summoned to Rome to answer for his support of Henry George's theories. Coal discovered in Texas.
 13. Engagement between the British forces and the Burmese, near Mandalay; 200 natives killed.
 14. American schooner Highland Light condemned for violation of treaty, and sold at auction; she is bought in by the Dominion Government, and turned into a cruiser.
 15. Panic on the New York Stock Exchange. Ex-Alderman McQuade found guilty, and sentenced to seven years in State Prison and \$5,000 fine.
 16. House passes a bill allotting lands in severalty to Indians.
 18. Morrison tariff bill defeated in Congress.
 22. Lord Randolph Churchill resigns from the British Cabinet.
 23. Strike on city railroads, Brooklyn, N. Y.
 28. Hearing begun in the case of the Andover professors charged with heresy.

F

FAIR-TRADE LEAGUE, an organization that sprang into being in England after the depression in trade and the agricultural prostration that began in 1873. It was the result of the efforts of several members of Parliament, who made speeches and wrote pamphlets laying the existing economic disturbance to the account of free trade, and pressing a protectionist revival in the form of reciprocity, or retaliatory or countervailing duties. The matter was taken up by the land-owners and tenant-farmers, and the movement eventually took shape in the formation of this association. So great was the feeling aroused among the British public that the Conservatives, on their accession to power after the defeat of Mr. Gladstone's government,

were forced into appointing a royal commission to inquire into the causes of trade depression. This commission was composed chiefly of Conservatives, under the chairmanship of Lord Iddesleigh. Prominent members were the Earl of Dunraven, Selater-Booth, R. H. Inglis Palgrave, F. R. S., and Prof. Bonamy Price, and the commission held sittings, examined influential witnesses from the chief centers of commerce, and received reports and statements from chambers of commerce and boards of trade throughout the United Kingdom and the British colonies. The first report of the commission was issued Feb. 7, 1886, and contained the evidence of Messrs. Giffen, of the Board of Trade; C. M. Kennedy, head of the Commer-

cial Department of the Foreign Office; S. Sel-don, Principal of the Statistical Department of the Customs; R. P. Harding, chief receiver in bankruptcy; J. S. Purcell, Registrar of Joint-Stock Companies and Controller of Stamps; A. West, Chairman of the Board of Inland Revenue; J. A. Crowe, Commercial Attaché to her Majesty's Embassy at Paris; and D. E. Colnaghi, British consul-general at Florence. It also contained the replies sent by various chambers of commerce to inquiries as to the state of trade sent to them by the commission.

The Fair-Trade League and the fair-traders generally repudiate any desire to reinstitute the corn laws, or even to impose protective duties. What they aim at is reciprocity or retaliation, with a view to the ultimate establishment of free-trade among nations. With regard to the practical application of the reciprocity principle, the fair-traders propose a close federation between England and her colonies, and the establishment of internal free-trade throughout the empire, but with the imposition of retaliatory or countervailing duties on imports from other countries. The free-traders, in objection to this proposed policy, while admitting that foreign tariffs in many instances have operated injuriously to the British manufacturer, and that at the existing low price of food, resulting from the free-trade system, British farmers could not profitably compete with their foreign rivals, yet maintained that the fact of being able to obtain food and raw materials on the lowest terms gave them an enormous advantage over other countries, and enabled their manufacturers to compete with all comers in the neutral markets of the world. The free-traders also asserted that the great advantage of the application of their doctrine was proved by the fact that England was not only the greatest manufacturing power, but had secured for herself the bulk of the carrying-trade and the banking business of the world.

Lord Salisbury, in his speech at the Victoria Hall in November, 1885, though avowing himself a free-trader, and protesting against the taxing of food and raw materials, thought there could be no harm in trying the experiment of retaliatory duties upon manufactures. The free-traders show, however, that some manufactures are the raw materials of others. Again, the free-traders contend that protective tariffs increase the cost of production, and that, accordingly, protected countries not only can not compete with free-trade countries in neutral markets, but can only inflict partial injury by competing in free-trade markets; also that while particular industries are injured by the admission of foreign goods duty free, the community is benefited. As for the distress of agriculturists, it is contended that the remedy is not protection, which would simply send up rents and increase the price of everything except labor, but the removal of the

restrictions that are imposed under the existing land system.

FAITH-CURE, an alleged effect of perfect religious faith, which has come into prominence within the past three years. One of the instances sustaining the theory was reported from Connecticut in 1884. The narrative reads as follows: "Mrs. —— has for many years been a victim to the opium-habit and asthma. She is now fifty-five years old. Over forty years ago she suffered from an attack of ill-health, and her physician prescribed opium. She is of a nervous temperament. The use of the drug as a medicine developed an appetite for it, to which she gave way. She continued its use up to the time of her cure, five weeks ago. She was also a great snuff-taker, and in addition there was the asthmatic trouble, which the drug was used to relieve. All the local doctors agreed that an opium-habit of forty years' standing was an incurable disease. The quantity used had steadily grown larger, until she would consume half an ounce of the drug in a day. The asthmatic affection was serious and constant, and, of course, peculiarly distressing. She could not remain long in the room with three or four other persons. Life was a burden, and she looked for and expected no relief. Mrs. —— resented the suggestion of friends that a prayer-meeting for her recovery be held at her house, and told them she had no faith in the proposed plan. She plainly intimated that they had better mind their own business, and not meddle with her concerns. But she finally made the attempt to break off both the opium and the snuff habit by the means suggested. She prayed herself, and her friends prayed for her. The abrupt stoppage of the doses of opium, of course, resulted in a decided breaking up of the system, and very shortly Mrs. —— became quite ill. One day, about a week ago, two or three of Mrs. ——'s friends met at her residence, and a season of earnest prayer was determined upon. Prayers were offered and continued with earnestness by those present, and the invocations continued for some time. It was during this period that Mrs. —— says she experienced a peculiar sensation of mind and body unlike anything she had ever experienced before. She calls it the 'blessings of the Holy Spirit.' From that moment she dates her complete cure, and she and her friends declare she has not touched opium or snuff, nor has she felt any desire for them, and, what seems the most singular part of the cure, she has been entirely freed from the asthmatical trouble. She now declares herself in perfect health; her appetite is good, and her general appearance that of a person in good health. She attributes her cure entirely to prayer and faith." Other instances of a similar nature might be mentioned; but the above is a fair illustration of what is claimed by those who believe in the faith-cure. Special gifts of healing are also claimed for certain ministers and laymen who

appear to be able to effect cures. It is claimed for them that they are not bound to the old routine of evangelistic services; that they are real successors of the apostles in working cures; that they are simply obeying the command of Christ: "As ye go, preach, saying the kingdom of heaven is at hand. Heal the sick, cleanse the lepers, raise the dead. Freely ye have received, freely give"; that they are also fulfilling the words of the Apostle James: "Is any sick among you? let him call the elders (or priests) of the church; and let them pray over him, anointing him with oil in the name of the Lord; and the prayer of faith shall save the sick, and the Lord shall raise him up." The words of St. Paul are also quoted: "God hath set some in the church; first apostles, secondarily prophets, thirdly teachers, after that miracles, then gifts of healings, helps, governments." Conferences, or conventions, have been held by those who claim that they have been cured by the power of faith. One of the chief of these conferences was held in Pittsburg, Pa., in November, 1885. As declared at the time, the object of the conference was, "to gather together Christians of common faith and spirit for mutual fellowship and encouragement in life and testimony; to study the Word of God, and learn to know better his message and testimony to his people, and the testimony he expects from his people for this day and time; to promote the deeper spiritual life among Christians, and help all who are seeking such a life to enter into complete union with Jesus Christ as their life, sanctification, and victory over the world, self, and sin; to seek to understand better the teachings of the Scriptures respecting our physical life in Christ, and confer regarding his word and his mighty work respecting divine healing, and to enable those who will to receive him as their healer; to wait upon the Lord for a special baptism of the Holy Spirit for life and service; to look forward with fresh hope and encourage each other's hearts for the prospect of the glorious appearing of the Lord." All "who desire simple and fuller instruction in the Word of God, a more vivid manifestation of Jesus himself, a deeper Christian life, a special baptism of the Holy Spirit for services, and the work of the Lord, and in the hope of his appearing," were invited to attend this gathering, and "wait upon the Lord for a deeper and richer blessing for themselves, and a special outpouring of his spirit for the Church and the world."

The work of comparing experiences and narrating facts in regard to the faith-cure has also been carried on in England, Ireland, Canada, and other countries. The phenomenon, if such it may be called, is explained, by one who does not believe in it, as a religious effect, in the following way: "It is a curious phase of religious belief, and I have been interested in it for some time as an investigator.

It seems, certainly, to have more or less effect upon human ills in some persons; but, as a rule, the relief is only temporary, and that would seem to place it with magnetism or mesmerism. Then, again, we all know that a person's mental condition has great influence upon his bodily health, and where a patient 'effaces' himself, by relying implicitly upon an all-wise, all-powerful Providence, he throws off all care as to his future. When his mind is thus wholly at rest, he gives Nature its best aid in the process of recuperation. There are many undoubted cases on record where a patient, bedridden for years, suddenly gets up and walks about, by the order of a strong-minded, magnetic healer; but the effect is only temporary. When the exciting causes, both external and internal, cease, there is a collapse. I can illustrate this very well by a case that came under my own observation. An acquaintance of mine, a young woman, was far gone with consumption. She attended one of these meetings as a last resort, became enthusiastic, full of hope, and finally convinced that she would recover. She prayed and was prayed for, and, sure enough, there was a marked improvement in her condition. In about two months she looked upon herself as almost well, and the believers were jubilant; this was a case that must convince the most skeptical. Then the young woman suddenly died. You have, probably, at one time or another, heard an old clock suddenly begin to tick. Well, the human frame sometimes acts like that."

FARMERS' CONGRESS, an association of agriculturists of the United States, which has met annually since 1881, at Chicago, Washington, Louisville, Nashville, and Indianapolis. On Dec. 3, 1885, it was reorganized by the election of Robert Beverly, of Virginia, President; Benjamin F. Clayton, of Iowa, Secretary; and J. B. Conner, of Indiana, Treasurer, and adopted the following constitution:

1. This organization shall be known as the Farmers' Congress of the United States, and its object shall be to advance the agricultural interests of the Union.
2. This Congress shall be composed of the same number of delegates as each State and Territory is entitled to in its representation in the Congress of the United States, one member from each agricultural college, and all heads of Bureaus of Agriculture in each State and of the United States are *ex-officio* members of this organization.
3. The officers of this organization shall consist of a president, and one vice-president from each State and Territory of the United States, a treasurer, secretary, and two assistant secretaries, who shall serve for the period of two years.
4. The president, however, and assistant secretaries, shall be elected by the Farmers' Congress in open session by a *viva voce* vote or by ballot, as the Congress may decide. The vice-president shall be elected by the respective delegates from each State or Territory. In case any State or Territory shall have no delegates when the election occurs, the president shall, as soon as possible, appoint a vice-president for such State or Territory, and the list of such vice-presidents shall be reported at once to the Congress assembled.

5. It shall be the duty of the president to preside over the deliberations of the Congress, communicate with the same in regard to the objects in view, and advise with the vice-presidents and other officers of the organization so as to assist them in their duties.

6. It shall be the duty of the vice-presidents to appoint all necessary committee-men in the congressional districts in the respective States so as to perfect a thorough organization of the agricultural interest; provide necessary means to collect a sufficiency of money to defray the expenses of delegates to the Congress; see that all money collected is paid to the treasurer, and to fully do and perform all duties in his State that may advance the interest of the agricultural classes.

7. It shall be the duty of the treasurer to take charge of all money paid to him, to keep a true and perfect account of the same, and in no case to pay the expenses of any delegate until such delegate files a stated account of such expenses, and in no case use any money furnished by a congressional district to defray the expenses of a different district; and the treasurer shall report to the Congress whenever required.

8. The Governors of the different States and Territories are requested to appoint the delegates heretofore provided for, and also to appoint alternates; and, in case they should fail so to do, then the vice-presidents of the respective States, in conjunction with the Commissioner of Agriculture or Bureau of Agriculture, shall make such appointment of delegates and alternates, and in case the regular delegates fail to attend and the alternates do, the latter shall have all the rights and privileges of the regular delegates.

9. The secretary shall keep a full and perfect minute of the proceedings of the Congress, keep all papers belonging to the same, and furnish copies when required to do so by the president and vice-presidents. The assistant secretaries shall assist the secretary in the discharge of his duties.

10. No delegate shall be entitled to any compensation, except his actual expenses, while in the discharge of his duties.

11. Each delegate shall hold his office for the period of twelve months from the date of his appointment.

12. The Congress of Farmers shall assemble annually, and have full power to discuss, advise, and perform other duties that may, in their judgment, advance the interests of the agriculturists of the United States. The Congress in open session, by a majority vote, shall designate the time and place of its next meeting.

13. The constitution is subject to be amended by a majority of the delegates.

The most interesting session of the body was that at St. Paul, Minn., Aug. 25-27, 1886, in which twenty-seven States were represented.

Governor Hubbard, in his address of welcome, said:

We recognize the fact that agriculture is the basis of wealth. It is the independence of the masses. It keeps our industries in motion, and is the great resource of the commerce of the world. The country prospers as the farmer develops the soil; and so vast an interest should command the protection of every agency. It should receive legislative and executive recognition, national and State. Its voice should be heard through such organizations as the Farmers' Congress, demanding protection and relief from the unnatural burdens of monopolistic exaction. It is the purpose of this convention to consider questions of this character, and from your deliberations I hope much practical good will result.

Secretary Clayton, being called out, said:

This Northwest is becoming a giant. It is but a few years since your beautiful city was but a military outpost, and you had no means of transportation save

the uncertain channels of the Mississippi river. Your energy in developing the great Northwest, with its mighty resources, is the wonder of the world. The marvelous growth of these twin cities convinces me that behind all this display is the hand of the sturdy farmer of the Northwest, without whose labor you could not prosper.

President Beverly, in his annual address, said:

It becomes my duty for the fourth time to address you. Since our last meeting all industries have been passing through a period of depression such as has not been experienced by this generation. A pressing necessity demands some definite plan of organization. The resolutions adopted at your last meeting were submitted by your committee to the Congress of the United States, and were favorably reported by their committees to each house, where they sank out of sight beneath the dark seas of personal and party politics, with no friend to call them up for consideration. The President of the United States did venture to recommend to Congress the suggestion that it might be well to inquire whether any legislation might be considered in the interest of the agriculture of the country. Seeing that this business embraces a majority of the voters, this act on his part has been mentioned by his friends as one of peculiar boldness and originality. If our public servants feel themselves incapable of dealing with these questions, they must be discharged, and those who are capable must be employed in their places. If existing political parties are incapable of meeting the issues of the hour, we must organize ourselves as a committee of safety. If it be a question of whether the politician or the country must go to the bad, the politician must go. If agriculture is properly fostered, there is before this country a destiny great and marvelous, which may be easily blasted by unfriendly legislation discriminating in favor of an exacting and merciless monopoly. This pernicious policy of working the forces of the Government in the service of monopolies and moneyed men has so oppressed and degraded American labor that it is everywhere in a state of angry irritation and revolt; and from every hamlet the outlook is shrouded in darkness. The present Department of Agriculture, so called, is universally known to be incapable. It is a half-equipped experimental station, run as a part of the political spoils system, which some men believe has been supported by so-called civil-service reform, which, up to this time, is the greatest failure, farce, and fraud of the nineteenth century, and is utterly worthless to any body other than those few persons kept in its pay. This unfairness on the part of our officials must cease, or revolution will be the result. Agriculture is the great conservative power of the nation, standing in the breach between labor and capital; the friend of peace, of law, and of order, but eternally demanding such legislative recognition as will place our occupation and calling upon the highest social plane. Those measures recommended by you are essential to the well-being of all the people; and let us still urge their passage, untrammeled by party or political feeling. As long as we go home prepared to deliver our suffrages at the ballot-box on demand, so long we bow the knee to a *privileged class*. Organize, I beseech you; not to-morrow, but to-day! Combine, and stand together as one man in defense of your interests!

The "Farmer in Politics" was presented by Mr. Wallace, of Iowa, showing to what extent the agricultural classes of the country are duped by the modern politician, and suggested remedies.

An address by Mr. Conner, of Indiana, on "Commercial and Social Statics," was received with universal approval, as was that of Mr. McGinnis, of Minnesota, on the extension

of the Signal Service, and that of Prof. Morrow, of Illinois, on "Agricultural Education."

Mr. Coffin, of Iowa, read an exhaustive and able paper on "Transportation," which presented the arguments in favor of general legislation on inter-State commerce in the strongest light, and at great length.

After a full discussion of those measures, the Committee on Resolutions submitted the following, which were adopted:

That the Congress of the United States be and are hereby requested to pass an act creating the office of Secretary of Agriculture, with all the emoluments and privileges of other Cabinet officers.

That the Congress of the United States be requested to extend the benefits of the Signal Service to all stations, or portions of the United States permeated by telegraph, for the benefit of agriculture, by the necessary display of signals, or otherwise, as may be thought advisable for such stations.

That in view of the growing importance of inter-State commerce, and the impossibility of its regulation by separate State governments, this Farmers' Congress earnestly recommends to the Congress of the United States a prompt exercise of its constitutional powers to regulate commerce among the States in such a manner as to protect the productive interests of the country.

That the Farmers' Congress recommends to the Congress of the United States that the sum of three million dollars, or so much thereof as may be necessary, be appropriated to stamp out contagious diseases among all domestic animals wherever such diseases may exist; and that the Legislatures of the several States of the Union are respectfully requested to enact such laws as may be necessary to supplement the acts of the Congress of the United States for the extinction of all such contagious diseases.

That the Secretary of State be and he is hereby instructed to ask our ministers of France and Germany to use all proper means in their power to prevent the restrictions upon American farm-products properly inspected and shipped to those countries.

That we most earnestly urge upon the Congress of the United States the necessity of a speedy and complete development of the system of water-ways of the whole country, including the Mississippi river, as being of equal importance to all the great interests—commercial, industrial, and agricultural.

That we recommend the restoration of the wool-tariff to what it was in 1867, and the maintenance of the present tariff on rice and sugar.

That the Legislatures of the different States be respectfully but earnestly urged to pass such laws as may be necessary to prevent what is called "dealing in futures," so far as relates to agricultural productions of every description, and to provide that no contract shall be enforced in any court of law for future sale and delivery of agricultural productions unless it was the *bona-fide* intention of the seller to deliver, and the purchaser to receive, the article or commodity bargained for at the time the contract was entered into.

That we look with much favor upon the law recently passed by Congress in reference to the manufacture and sale of oleomargarine, and recommend the strict enforcement of the law, and that the manufacture of glucose in the United States be placed under the same law.

That the Congress of the United States is hereby requested to increase largely the annual appropriations to the Department of Agriculture, to be applied to the extension of the Signal Service, and to the establishment and endowment of State experimental stations; and further, that the members of this body are requested to urge their respective Senators and members of Congress to favor the appropriations asked for in the above resolution.

That a committee of one from each State be ap-

pointed to ask of the Congress of the United States the passage of an act incorporating the Farmers' Congress of the United States; said act to embrace the constitution hereafter adopted by this body as a part of its charter of incorporation. The President of this Congress shall be *ex-officio* chairman of said committee, and the Secretary of this Congress *ex-officio* Secretary thereof.

That the farmers of all the States of the Union be earnestly requested by the committee, nominated in the foregoing resolution, to organize in each State a Farmers' Assembly under such constitution as the farmers of each State may see fit to adopt, and that such Farmers' Assembly shall be incorporated under the laws of each State respectively.

That every such Farmers' Assembly shall be entitled to send representatives to this Congress as follows: One representative for each member of the House of Representatives, and one representative for each Senator of the Senate of the United States.

That this Congress respectfully recommends that the Farmers' Assembly of each State meet in annual session at the capitals of the respective States during the session of the Legislature, and that the representatives to this Congress shall be elected by such assembly.

That each delegate to this Congress is requested to urge local organization among the farmers of his district.

Whereas, it has come to the knowledge of this Congress that a late importation of three hundred and fifty-four head of cattle from Scotland to Quebec is found to be affected by the disease known as contagious pleuro-pneumonia, and the Canadian authorities have ordered the entire shipment slaughtered and cremated, and that an outbreak of this and other contagious diseases is continually brought to our notice as occurring throughout England and Scotland, believing that, unless the importation of cattle from these countries is prohibited, the great cattle industry of this country will be endangered: Therefore,

Resolved, That this Congress ask the Secretary of the Treasury to withhold his permit for the importation of cattle from those countries so long as any reasonable apprehension of danger shall exist from such importation.

The only call of States was on the tariff question, as presented in the seventh resolution, and resulted as follows:

STATES.	Yea.	Nay.	STATES.	Yea.	Nay.
Arkansas.....	7	..	Nebraska.....	5	..
Florida.....	6	..	Minnesota.....	4	8
Georgia.....	..	12	North Carolina.....	..	11
Illinois.....	22	..	Ohio.....	23	..
Indiana.....	11 $\frac{1}{2}$	8 $\frac{1}{2}$	Pennsylvania.....	30	..
Iowa.....	12	1	South Carolina.....	9	..
Kansas.....	9	..	Tennessee.....	..	13
Kentucky.....	..	18	Texas.....	..	13
Louisiana.....	8	..	Virginia.....	..	12
Maine.....	6	..	Wisconsin.....	7	4
Maryland.....	..	6	Total.....	159 $\frac{1}{2}$	118 $\frac{1}{2}$
Mississippi.....	..	9			
Missouri.....	..	15			

After selecting Chicago as the place of meeting for 1887, the Congress adjourned.

FINANCIAL REVIEW OF 1886. At the end of this year the outlook was generally hopeful, although not wholly confident. Iron manufacturing, which had been very profitable and more extensive than ever before, gave promise of still greater development in response to the demands for railroad building and furnishing and structural work of various kinds. Other branches of manufactures, which had been held in check by the labor troubles, were in a condition to resume on an extended scale when-

ever this incubus was removed and with the revival of these industries and the establishment of more harmonious relations between capital and labor it was hoped that general trade would be more profitable in the next than it had been during the current year. No attempt was made, however, to conceal the fact that a great deal depended upon harmony between the employer and the employed. It was evident that if the latter intended to insist upon dictating rates of wages, hours of labor, and methods of management, and, moreover, proposed to interfere with or prevent the employment of persons willing to comply with salutary rules and accept such compensation as could be afforded, the friction between labor and capital would become so great that combinations of employers would have to be continued, where already formed, or organized, in cases where such organization had been deferred in the hope of accomplishing peaceful results by less harsh measures. The strikes early in the year among men employed in the manufacture of fabrics resulted in compelling the owners of the establishments to curtail their output, and in some cases the orders for the goods were transferred to Europe. The demand of workmen on clothing for higher wages and shorter hours came at a time when refusal would be ruinous to contractors, and, after the work in hand had been done, no more engagements were made, except with the proviso that they should be canceled if work was interrupted by labor-strikes. The knit-goods, boot and shoe, carpet, building, furniture, and almost all kinds of trades were at intervals suspended or interrupted during the year by disagreements of greater or less magnitude between employers and employed and these suspensions or interruptions induced such caution among the dealers in the articles affected as very materially to limit the volume of business and greatly reduce its profits. Unfortunately, there was little at the close of the year to encourage the hope that the lessons taught by the failure of the labor demands would prevent their repetition. On the contrary, it was feared that the various organizations throughout the country would secretly prepare for another effort to enforce their requirements, and, at an inopportune moment, precipitate a movement which would, temporarily at least, have a paralyzing effect upon all branches of trade and manufactures. While our troubles were confined to those resulting from labor-strikes in manufacturing establishments and on railroads, European countries had the almost constant menace of the Eastern question which in one form or another—first on the Afghanistan frontier, next in Greece, and finally in Bulgaria—kept political affairs in a state of tension, and at times, when outbreaks were threatened, deranged the financial affairs of the principal business centers. For the first half of the year England was in a state of expectancy over the Irish question. The defeat of the Gladstone ministry on the

issue of home-rule ended the suspense, and thereafter domestic peace was interrupted only by the agitation of a few malcontents. The finances of Europe were kept in a condition of uncertainty by the efforts of each nation to get more gold and retain its possessions of that metal, and early in the year France succeeded in drawing from all the nations of Europe and also from America an amount sufficient to enable her successfully to float her loan of 1,446,-000,000 francs. After this Germany commenced to absorb the metal, drawing it from London, Paris, and America, but this movement, as was explained toward the close of the year, was caused by sales by Germany to the Egyptian Government of its stock of silver bars, amounting to 2,267,232 troy ounces, and of 1,143,000 marks of silver coin. During the first six months of the year the United States sent to Great Britain, France, and Germany, \$29,494,110 in gold. The import movement which commenced in August resulted in the receipt of \$34,723,067, the principal part being taken from France. The sales of silver by Germany will in part explain the cause of the fall in the price of the metal in London from 47 pence per ounce, at the beginning of the year, to 42 pence July 31, and the subsequent recovery to 47 $\frac{1}{16}$ pence November 19 was partly due to the appointment of a British commission to inquire into the relative values of gold and silver, and in part to purchases by France in London and New York of bullion amounting in value to about 7,000,000 francs, for coinage into money for circulation in Tonquin. The anxiety that was felt early in the year regarding the ability of the Treasury Department to maintain gold payments of its balances at the Clearing-Houses was allayed, first by the settlement of such balances with gold instead of partly with United States notes; and, secondly, by the exhibition of the results of the policy adopted by the department of issuing silver certificates in exchange only for the coins, and thus reducing the volume of such certificates. The reports of the Treasurer, showing monthly receipts at New York from customs, indicated, as the result of this policy, a reduction in the percentage of silver certificates received, from 23 $\frac{3}{4}$ in July, 1885, to 8 $\frac{1}{2}$ in February, 1886, while the receipts of gold certificates had increased from 28 $\frac{1}{2}$ in July, 1885, to 60 $\frac{1}{2}$ in December, and United States notes had been augmented from 16 $\frac{3}{4}$ in October, 1885, to 84 $\frac{1}{2}$ in July, 1886. These changes aided in increasing the net gold balance of the treasury from \$136,086,610 January 31 to \$156,793,749 June 30, and to \$163,930,220 by Nov. 30, 1886, although during the calendar year \$127,000,000 bonds had been called, and nearly the whole redeemed. While the market price of silver was steadily declining in London, thus reducing the intrinsic value of our coins, we were freely exporting gold to Europe, but confidence in the wise administration of the national finances was apparently so great that only a

faint and entirely unsuccessful attempt was made to excite alarm, and even those capitalists who at intervals in 1885 and in the early part of the current year invested in sterling for safety, and also to insure gold returns, abandoned these investments during March. Unfortunately, Congress did little toward restoring confidence in the national finances. On the 8th of January, Mr. Eustice introduced a resolution in the Senate proposing to pay with silver the \$10,000,000 3-per-cent. bonds called on Dec. 29, 1885, for redemption, and this temporarily had an unsettling effect upon the London market for bonds, but this proposition was not seriously considered by the Senate. Early in February the House passed a resolution calling upon the Secretary of the Treasury for an explanation of the policy inaugurated by the department during the previous summer, but the Secretary's reply was complete, and regarded as satisfactory. April 8 Mr. Bland's bill, providing for the free coinage of silver was defeated in the House, but the vote showed that this was the best that could be expected, and that there was no hope, at least in that Congress, for the repeal of the coinage act. In June Mr. Morrison introduced a joint resolution in the House requiring the Secretary of the Treasury to call bonds, regardless of the condition of the gold reserve. This resolution was sent to the Senate, there amended by making such calls discretionary with the Secretary, and it was further amended by providing for the redemption of the trade-dollar; but, although these amendments were concurred in by the House, the resolution failed for want of the signature of the President. After the middle of the year until December the disturbances resulting from the labor troubles subsided, gold flowed hither from Europe, railroad earnings improved, the crops were abundant, specula-

tion in stocks and staples gradually increased, money commanded better rates, thus causing its withdrawal from boards and other depositories, and the outlook was encouraging for all interests. Trading in stocks, however, seems to have been overdone, with the usual results, and in December forced liquidations of speculative accounts, caused by active money and an indisposition to loan upon a certain class of collateral, kept the stock and other markets unsettled during the greater part of the month, and imparted a feeling of anxiety at the close of the year, which was somewhat intensified by a renewal of labor troubles in Brooklyn, Pittsburg, and other cities, and more or less important failures of business houses in various parts of the country. The following tabular survey of the economical conditions and results of 1886, contrasted with those of the preceding year, is from official returns, and also from the "Commercial and Financial Chronicle":

ECONOMICAL CONDITIONS AND RESULTS.	1885.	1886.
Coin and currency in the United States, November 1.	\$1,556,914,798	\$1,586,271,000
Mercantile failures.....	124,220,821	114,644,119
Imports of merchandise	557,565,673	668,417,210
Exports of merchandise.....	658,249,798	713,259,666
Imports of gold and silver.....	41,418,029	58,528,809
Exports of gold and silver.....	44,697,749	63,821,566
Railroads constructed, miles.....	8,118	8,648
Gross earnings, 93 railroads.....	814,288,444	844,852,956
Wheat raised, bushels.....	357,112,000	457,000,000
Corn raised, bushels.....	1,936,176,000	1,665,000,000
Cotton raised, bales.....	6,550,215	6,412,000
Pig-iron produced, tons (2,240 pounds).....	4,044,526	5,684,548
Anthracite coal produced, tons.....	81,623,529	82,186,362
Petroleum, barrels.....	21,225,208	26,000,000
Immigration	326,151	386,755

The prices of leading staples on or about the 1st of January, 1887, compared with prices at the same date in 1886 and 1885, were as follow:

PRICES OF LEADING STAPLES.	1885.	1886.	1887.
Cotton, middling uplands, per pound	11½	9½	9½
Wool, American XX, per pound	34 @ 36	87	84 @ 88
Iron, American pig, No. 1, per ton.....	\$19 50 @ \$20 50	\$18 00 @ \$18 50	\$20 00 @ \$21 90
Steel rails at mills.....	\$25 00	\$34 00 @ \$35 00	\$37 00
Wheat, No. 2 red winter, per bushel.....	84 @ 86	92½	93½
Corn, Western, mixed No. 2, per bushel.....	58 @ 54½	56½	45½
Pork, mess, per barrel.....	\$12 50 @ \$13 00	\$10 00 @ \$10 25	\$12 50 @ \$12 75

The Money Market.—During the first quarter of the year bankers' balances were loaned at the Stock Exchange at 1 and at 5 per cent., averaging from 2½ to 3, and in February loans on commercial paper were made at very low rates, such as 2½ to 4½ on four months' acceptances, 2½ to 3½ on 60 to 90 day indorsed bills receivable, and 4 per cent. on some good single names, while a fair grade of jobbers' paper was done at 4½ to 5½ per cent. Trust companies were then making loans on stock collateral, running to the end of the year, at 4 per cent., and banks were obliged to accommodate their customers at equally low rates. The silver question tended to drive capital into hoards, thus largely augmenting the deposits of the

Trust Companies and other institutions, and in their desire to place their money where it would be safe and at the same time earn fair returns, investors drained the market of first-class railroad securities, in some cases paying prices which did not yield more than 4 per cent. Others bought sterling for investment, and still another class purchased real estate, but very few put their money into manufacturing or business enterprises, being deterred by the fear of a spread of the labor troubles which early in March began to attract attention. Toward the end of the first quarter the bank reserves were low, in consequence of withdrawals of gold for shipment to Europe, and also because of a demand from the interior,

and banks were indisposed to loan freely on call, and they did nothing below 3 per cent. In April there was an easier tone for money, caused by the improved condition of the banks, resulting from the satisfaction of the demand from the interior, and a little less anxiety was felt regarding the silver question, the defeat by the House of Representatives, on the 8th, of Mr. Bland's bill providing for free coinage of silver, and the conviction that the policy of the Treasury Department would enable gold payments to be maintained, largely contributing to this feeling of relief. During the first week in May there was a slight flurry in money, and an advance to 7 per cent. on call, caused by the rioting at Chicago, but the rate subsequently fell off, and the average for the month was not above 4 per cent. About the middle of May the banks restricted their loans because of low reserves and the concentration in three of the institutions of about 85 per cent. of the whole surplus, and commercial paper was only in fair supply, although the demand was not urgent. Rates were then quoted at 4 to 4½ per cent. for short acceptances, 4 to 5 for jobbers' paper, and 4½ to 6 for good single names. In June, bankers' balances loaned at 1 and at 7 per cent., the higher rate being recorded toward the close, and it was inferred from the fact that there was only a light inquiry for loans on time on stock collateral, the best bid being 3½ per cent. for the remainder of the year, that money was likely to remain easy. During the last few days in June, however, the tone of the market changed in consequence of a calling in of loans by some of the banks and trust companies, in order to prepare for the July disbursements of interest and dividends, and early in the following month 9 per cent. was recorded. The average subsequently fell off to 2½ and 3 per cent., and the market was easy until toward the end of the month, when it became active not only on call but for commercial paper. Banks refused to loan at less than 4 per cent. on prime security, and only a few were in a position to offer money at the Exchange by reason of low reserves and calls upon them by their correspondents at the interior. This threw the demand upon the Stock Exchange, and the average for bankers' balances gradually rose to 4 per cent. The banks being practically out of the market for paper, rates advanced, and 60 to 90 day indorsed notes were quoted at 4 to 4½ per cent.; four months' jobbers' names, at 4 to 5, and good single-name notes having four to six months to run, 5 and 6½ per cent. During the first week in August money became still more active on call, and the supply at the Exchange being limited, opportunity was afforded for manipulation. Two of the largest banks were then carrying two thirds the total surplus reserve, and the remainder was distributed among three other banks. Those in a condition to buy paper refused to take any below 5½ to 6 per cent., and time-loans on stock collateral

commanded 4 and 5 per cent. for four months, the rate depending upon the character of the security. Eastern banks had full employment for all their funds; Western institutions were engaged in supplying the demands of grain-buyers and stock-raisers, and they were almost daily drawing upon their New York deposits. During the second week in August there was a manipulated advance in the rate for money at the Stock Exchange to 40 per cent., for the purpose of unfavorably influencing the stock speculation. On the following day, after the demand had been supplied, the rate fell to 1 per cent., but 7 was a fair average for both days. The bank return of the 12th showed that two of the institutions were carrying nearly the whole of the \$8,647,250 surplus, leaving the remainder either at or below the 25 per cent. limit. This condition of the banks induced a few of them to call in loans, the trust companies had to meet a demand for some of their deposits, and they in turn called upon the banks, so that the activity in money had a legitimate basis. On the following week there was a flurry in money, during which the rate was marked up to 20 per cent., caused by the financial troubles at Boston, growing out of the defalcation of Gray, the Indian Orchard and Atlantic Mills treasurer, but, as was the case in the previous week, the rate the next day fell to 1, and the average thereafter was not above 7. With the object of relieving the stringency in the money market, the acting Secretary of the Treasury, on the 19th, issued a call for \$15,000,000 3-per-cent. bonds. In the closing week of the month there was an advance in money to 9 per cent., caused by the calling in of loans by some of the trust companies, but the average was not above that of the previous week. Some of the life-insurance companies and other institutions were then making loans on stock collateral at 6 per cent. for the remainder of the year, but they required first-class security and ample margin. There was no sale for commercial paper at the close of August, except at high rates, and not more than one of the city banks was purchasing notes. For this reason, quotations for paper were nominal. On the last day of the month, the Secretary of the Treasury gave notice that any part of \$10,000,000 3-per-cent. uncalled bonds would be redeemed if presented before September 15, and this order was subsequently modified so as to include any un-called bonds. There were then outstanding two calls, one for \$15,000,000 and another for \$10,000,000; but as most of these bonds were owned by the banks, and held as security for circulation, redemptions were slow, and the relief to the market almost imperceptible. Gold imports commenced during the middle of August, and these aided to some extent in enabling the banks to meet the drain to the interior and for customs. Early in September the average for call loans was 6 to 7 per cent. and the extremes 1 to 9. The Treasury disbursed comparatively large

amounts for interest, and moderately for the calls maturing September 1 and 15, and the banks gradually grew easier, so that they purchased paper to a limited extent; but mainly for the purpose of replacing matured notes. A few were in a condition to offer money at the Stock Exchange, but they exacted good security, and demanded the best average rates. The Secretary of the Treasury issued a call for \$15,000,000 on the 15th, and directed that any of the called bonds be paid with interest to the date of presentation, without waiting for the maturity of the call, but, for reasons above stated, redemptions were comparatively light. One feature toward the close of the month, was a slight flurry at Boston, Providence, and Hartford, caused by defalcations by the President of a Portland (Me.) bank, and by the President of the Charter Oak Life-Insurance Company, and of the Union Manufacturing Company. Although in an improved condition as regards reserve, the banks were not disposed to be liberal in their offerings of money, as they desired to make preparations for meeting the mercantile demand, which was expected from the 1st to the 10th of October. The lowest rate for commercial paper was 6 per cent., and some banks were seeking to make six months time loans on stock collateral at this rate, but borrowers generally declined to make engagements running beyond the end of the year. Early in October, a 10-per-cent. rate on call was recorded, caused by calling in loans, and also by a demand for money on collateral unacceptable to conservative lenders. Borrowers with good security had no difficulty in obtaining funds at 6 per cent., but the speculation in fancy stocks, and the rapid rise in a few specialties, compelled some houses to ask loans on these properties as collateral, and they were required to pay from 7 to 10 per cent. Twice during the month 1 per cent. was recorded, but as the day's demand had then been supplied, this rate was not fairly quotable. Toward the close of the month, the banks became easier, and there was a better inquiry for first-class commercial paper at a minimum rate of 5½ per cent. One feature was a rise in United States bonds to the best figures ever recorded, caused by a good demand and a very moderately supplied market. In the following month, however, there was a sharp fall in these securities, followed by an important rise. It was stated that the purchases by the banks of 4 and 4½ per cents. with which to replace called bonds were light, and confined to amounts which would satisfy the requirements of the national banking law, and the majority of the banks seemed disposed to reduce their circulation rather than pay the current prices for new bonds. One cause for the reduction in the bank reserves was the deposit of money at the sub-treasury in exchange for new silver certificates, which were largely issued during October, and distributed among the banks of the entire country. Early in November, money

was active on call, partly because of manipulation, but mainly in consequence of the demand for loans upon undesirable collateral. Subsequently, the market became easier, but toward the close of the month the enormous speculation at the Stock Exchange, which largely increased the inquiry for funds, caused rates to advance, and 20 per cent. was recorded during the last week. The average for the month was from 5½ to 7 per cent., according to the collateral offered. The rates for commercial paper at the close were 5½ to 6½ per cent., for sixty to ninety day indorsed bills receivable; 6 to 7 for four months commission-house names, and 6 to 8 for good single names having four to six months to run. The rate for money on prime stock collateral for four months was 6 per cent. Nearly all the paper taken was bought by out-of-town institutions. Early in the month, the Secretary of the Treasury ordered the payment without rebate of the interest due December 1, amounting to \$2,812,500, and with a rebate of 3 per cent. per annum of the interest due January 1, amounting to \$9,316,469, making a total of \$12,128,969, the object being to relieve the money market. December opened with activity in loanable funds, caused in great part by the speculation in stocks and staples, and by the demand for loans upon indifferent collateral, but, as was the case in the previous month, borrowers with good security were accommodated at an average of about 6½ per cent., while others had to pay from 7 to 12, and even more in exceptional cases. On the 15th a panicky fall in certain stocks, which had been sharply advanced, caused a calling in of loans by banks and private lenders, the rate for many rose before the close of the day to 186 per cent. per annum, and the excitement did not subside so as to permit the market to resume its normal condition until the 17th. Thereafter, for the remainder of the month, money was not unusually active, relief being afforded by Treasury disbursements of interest, that due January 1 being ordered paid without rebate, and also by arrivals of gold from Europe. At the beginning of the year, the banks of this city had an average of \$89,721,100 gold. This was increased to \$100,212,200 by the end of January, and after this there was a gradual reduction, mainly due to gold exports, and a drain into the Treasury for customs, so that by July 17 the average amount held was \$63,723,700, the minimum of the year. Thereafter, principally through gold imports, the amount was increased to \$80,709,700 by November 20. On January 3, the banks held an average of \$28,808,200 legal-tender notes, which was increased to \$35,882,600 by February 13. Then came a reduction to \$26,241,100 April 3, caused by a drain to the interior. This was followed by a gradual increase to \$45,069,000 July 17, when the demand for the country again set in, and by November 6 the amount held was reduced to \$16,242,600, the

minimum of the year. Thereafter, there was a slight increase to the end of the year. Bank loans on January 2 were reported at \$339,909,800. The maximum of \$359,685,300, was reached March 20, and then came a reduction to the minimum of the year, \$337,307,600, September 18. Speculative and commercial demands then brought about an increase to \$352,413,500 on December 11. The average deposits were at the maximum, \$396,080,800, February 13, and at the minimum, \$345,708,500, September 11. The advance to \$360,981,400, December 4, was largely due to the augmented loans, and to the increase in the cash held by the banks. The clearings of the associated banks of the city showed a daily average at the beginning of the year of \$121,617,-

439. Then followed a fall to \$96,728,279, March 13, and recovery to \$130,429,617 on the following week, a decline to \$80,922,591, September 4, and a reaction to \$165,589,361 December 18, which was the maximum of the year.

The Comptroller of the Currency reports the failure of eight national banks, having an aggregate capital of \$650,000, during the year covered by his communication to Congress, and four of the suspensions were caused by embezzlements. The condition of the New York Clearing-House banks, the rates for money, exchange, and silver, and prices for United States bonds on or about Jan. 1, 1887, compared with the preceding two years, are shown in the following summary:

BANK RETURNS, ETC.	1885.	1886.	1887.
NEW YORK CITY BANKS:			
Loans and discounts.....	\$295,874,200	\$339,009,800	\$343,687,500
Specie.....	88,170,500	89,721,100	82,718,100
Circulation.....	11,618,600	9,979,800	7,911,500
Net deposits.....	885,272,100	876,959,800	859,268,600
Legal-tenders.....	36,592,300	28,808,200	19,370,400
Required reserve.....	88,815,025	94,289,825	89,817,150
Reserve held.....	124,762,800	118,529,800	102,088,500
Surplus reserve	\$40,944,775	\$24,289,475	\$12,271,350
MONEY, EXCHANGE, SILVER :			
Call loans.....	11 @ 2	2 1/2 @ 5	4 @ 8
Prime paper, sixty days.....	4 1/2 @ 5 1/2	4 @ 5	5 @ 6 1/2
Silver in London, per ounce.....	49 1/2 d.	46 1/2 d.	46 1/2 d.
Prime sterling bills, sixty days.....	4 81	4 86	4 81 1/2
UNITED STATES BONDS :			
8s, registered, option.....	101 1/2	102	100
6s, currency, 1898.....	181	182 1/2	181 1/2
4 1/2 s, of 1891, coupon.....	112 1/2	112 1/2	110 1/2
4s, of 1907, coupon.....	121 1/2	123 1/2	121 1/2

Appended is the Clearing-House statement of totals at the beginning of each quarter of 1886, and at the end of the year:

DATE.	Loans.	Specie.	Circulation.	Deposits.	Legal tenders.
January 2.....	\$389,000,800	\$89,721,100	\$9,793,800	\$376,959,800	\$28,808,200
March 27.....	356,058,600	79,084,600	7,989,600	380,264,600	23,778,700
June 26.....	351,086,500	65,013,400	7,829,400	375,828,100	43,297,900
September 25.....	387,455,700	76,642,800	8,188,700	347,095,700	19,211,000
December 31.....	343,687,500	82,718,100	7,911,500	359,268,600	19,370,400

Foreign Exchange.—The imports of merchandise for the twelve months ending Dec. 31 1886, were \$75,548,537 above those for the corresponding period in 1885, and the exports of domestic and foreign merchandise for the same time were \$25,089,868 more. The excess of merchandise exports over imports for twelve months of the calendar year was \$49,872,456 against \$100,381,125 for the same time in 1885. There was an excess of exports over imports of specie and bullion of \$9,793,257 for twelve months ending Dec. 31, 1886, against \$3,279,720 for the same time in 1885. The excess of exports over imports of merchandise and specie amounted for the above-named period in 1886 to \$59,665,713, against \$103,660,845 for the corresponding twelve months in 1885. Foreign exchange was firm at the beginning of the year, under the influence of an invest-

ment demand for long sterling and a scarcity of commercial bills, and by the middle of January \$749,000 gold had been shipped to Europe. Rates were maintained at the gold-exporting point throughout February and until the middle of March, the supply of long sterling being steadily absorbed by investors, and the arbitrage houses buying short bills and cable transfers to remit for stocks sold on European account, and making up deficiencies by shipping gold. The inquiry became less urgent after the 15th of March, the shipment of about \$9,000,000 up to that time apparently satisfying the demand, and the market began to be more liberally supplied with commercial bills drawn against cotton and breadstuffs. Immediately afterward, however, there was an urgent inquiry for gold for France, preparations there being made for floating the new

French loan of 1,466,000,000 francs, and during the third week in March there was an export of about \$5,200,000 directly to that country. By the end of the month this movement ceased, the pressure of commercial bills again had a decided influence on the market, the investment inquiry subsided, mercantile requirements were light, and the arbitrage houses were liberal drawers of sterling against purchasers of securities. After a brief interval the movement of gold to France was renewed, and during April over \$3,500,000 was sent to Paris. Shipments to London and France continued throughout May, but after the 15th of that month the inquiry for Paris was less urgent, the new loan having been negotiated. Moderate amounts of gold went to London during June, and toward the close of that month there was a movement to Berlin in response to the special demand above noted. This inquiry was satisfied by the end of June, and no more gold was sent to Europe. Our contributions of this metal to Great Britain for the first six months of the year were \$12,453,044, to France \$11,571,801, and to Germany \$5,469,265, making a total of \$29,494,110. The movement to London may be regarded as mainly for the settlement of trade balances, while that to Paris and Berlin was in response to the exceptional requirements above referred to. The tendency of the market for sterling was downward in July, in consequence of large offerings of bills drawn against securities bought for European account, and toward the close of the month there was a sharp fall in the rates, due to a pressure of commercial drafts. In August the market was unsettled in consequence of active money and continued offerings of bankers' and other bills, and during the third week in the month gold commenced to move from France to New York in liberal amounts, and to a moderate extent from London. The Bank of France sought to retard this movement by advancing the premium on gold, and the Bank of England demanded fractionally higher rates for her gold than the market price, but these measures simply resulted in compelling shippers to obtain their supplies in the open markets, and the profits of importations were limited, because only coin of light weight was procurable. Gold imports continued uninterruptedly to the end of the year, although after October the receipts were almost wholly from France, the Bank of England advancing its minimum rate of discount for the purpose of checking the flow to America. The imports of gold from Europe for the last half of the year were, as above stated, \$34,723,067. That the movement was not in response to trade conditions, is shown by the fact that at the end of December the merchandise balance was only \$49,872,456 in favor of this country. The low rates for exchange which enabled gold to be brought out, resulted mainly from our active money market, large purchases of securities for investment and speculation on European

account, and a light demand from importers of goods. December 15 the exchange market was so greatly unsettled by active money and an insignificant demand that the nominal rates fell to the lowest points recorded since November, 1884, and gold was again ordered out from London. This caused an advance in the Bank of England minimum to 5 per cent., but exchange was only temporarily affected, and it was dull and steady to the end of the year.

Manufacturing Industries.—With the exception of iron, steel, and a few other branches of industries, manufacturing was not profitable during the year to the extent that was expected at the close of 1885. Influenced by low prices for raw material and by light stocks throughout the country, manufacturers made preparations early in the year for a largely increased output. Until March the feeling was very hopeful, and the prospects were regarded as excellent for a pro-ferous season. Then came the labor-strike on the Missouri Pacific, which during that entire month practically isolated a large portion of the Southwest by preventing the distribution of goods. This was followed by the demand for increased wages and shorter hours on the part of workmen in manufactures, and in some cases the employers resolved to shut down rather than yield to the exaction. Others combined to resist the requirements of their operatives, and in some branches of trade the lock-out continued throughout the remainder of the year. The failure in May of the eight-hour movement only partially stimulated manufacturing, for the members of the labor organizations were manifestly restive in consequence of their defeat, and their employers were therefore apprehensive of a renewal of their demands, so that production of goods was to a great extent reduced and confined almost wholly to current needs. The distribution of goods was, of course, affected by the embarrassments of the manufacturers, profits were materially lessened by the enhanced cost of production, consumption was restricted by the loss of wages resulting from the strikes and the efforts of labor to coerce capital; and instead of the year's business in manufacturing and general trade being highly profitable, as was confidently expected, it was greatly disappointing. The principal exception was in the iron business. The demand for railroad and structural purposes was good and at times urgent; prices advanced steadily in response to the inquiry; the fact that the employes were members of an organization distinct from that of the Knights of Labor, and that the relations between them and their employers were harmonious, contributed to make the operations of the manufacturers profitable and enabled them to reasonably advance wages. The year was therefore a very prosperous one for the iron and steel interests, and the outlook at the close was highly encouraging. The anthracite-coal combination, which was reorganized early

in the year upon the basis of allotment, worked satisfactorily, the demand for the product kept pace with the supply, prices were generally satisfactory, and the output of anthracite coal for the year ending December 31 was 32,136,362 tons, against 31,623,529 in 1885 and 30,718,293 in 1884. The production of pig-iron for the year 1886 was 5,684,543 tons, against 4,044,526 in 1885, both coal and iron being partly estimated. New railroad mileage was 8,648 miles, against 3,113 in 1885 and 3,813 in 1884.

The Crops.—Favorable conditions prevailing in the wheat belt during the winter and spring gave the plant a good start, and the grain was so rapidly advanced in April and May under the influence of warm, forcing weather, that the harvest commenced in some sections by the middle of June. The season was propitious for sowing spring wheat, the acreage was increased by opening up new lands in the extreme Northwest, and the grain made rapid progress in its early stages, as also did corn and other products. During June and July dry weather in the winter-wheat belt and frosts in the spring-wheat sections retarded the growth of the crops; but fall-sown grain matured and was gathered in good condition, and the principal damage by drought was to spring-sown wheat, corn, and grass. The estimate of the wheat-yield made by the Department of Agriculture was 457,000,000 bushels, against 357,112,000 for the previous year, and the winter wheat was promptly marketed. The yield of corn was estimated at 1,668,000,000 bushels; of oats, 600,000,000; of barley, 60,000,000; of rye, 26,000,000; buckwheat, 11,000,000; and potatoes, 165,000,000. Tobacco yielded about 485,000,000 pounds, hay 45,000,000 tons, and cotton will probably turn out 6,438,000 bales. The European crops of breadstuffs were below the average, and early indications of this result stimulated an export movement which commenced in August and continued with but slight interruptions to the end of the year, the bulk of the grain going to the Continent of Europe. Farmers generally profited by the lessons taught in previous years, and, instead of holding back their wheat freely sent it forward. The producers in the winter-wheat belt were inclined to this course because of necessity, the previous season's crop having been so poor. Those in the Northwest shipped liberally immediately after the harvest, and then waited for more favorable markets before forwarding the remainder. Notwithstanding the prospective demand from Europe, however, prices of wheat were not well sustained in the fall and winter. The visible supply accumulated so that by the close of December it was nearly 63,000,000 bushels, a larger amount than ever before recorded, and under the influence of these enormous stocks the market generally favored the export movement.

Taking the prices in the New York market on or about the 1st of January in each year, and the total yield for the previous season, we

have the following approximate results in quantities and value:

THE CROPS.	Yield in bush.	Price.	Value.
1885.			
Wheat.....	357,112,000	\$0.92 $\frac{1}{4}$	\$330,328,600
Corn.....	1,986,176,000	.50	968,088,000
Cotton, bales.....	6,550,215	.09 $\frac{3}{4}$	294,852,491
1886.			
Wheat.....	457,000,000	0.93 $\frac{1}{4}$	427,295,000
Corn	1,665,000,000	.45 $\frac{1}{2}$	801,281,250
Cotton, bales.....	6,440,000	9 $\frac{1}{2}$	299,170,200

Railroads.—With the exception of the transcontinental war, involving the Central, the Union, and the Southern Pacific, and the Atchison, Topeka, and Sante Fé roads, and the Pacific Mail Steamship Company, which broke out in February and remained unsettled at the close of the year; some quarrels of less importance among the granger roads; cutting of passenger rates by the Baltimore and Ohio; shading of freight tariff by the Chicago and Atlantic, and an express war inaugurated by the Erie express line, the railroads of the country worked together harmoniously during the year, and it is claimed that freight rates were almost uniformly maintained by the trunk lines of road. It was rumored in November that negotiations were making satisfactory progress by which the differences between the Baltimore and Ohio and the Pennsylvania would be composed, and it was stated that the former would have a New York outlet over the tracks of the latter, but this statement was not confirmed. The steps preliminary to the reorganization of the Reading occupied the attention of the syndicate, the reconstruction trustees, and the public, for the greater part of the year. One obstacle after another was removed, and finally Mr. Austin Corbin took the place of Mr. Gowen as president, and he was also elected one of the voting trustees. After the plan had been substantially agreed upon its publication was delayed on various pretexts until about the middle of December, when it encountered unexpected opposition from some of the holders of the general mortgage. Early in December Judge Gresham removed Messrs. Humphreys and Tutt from the position of receivers of the Wabash, and subsequently appointed Judge Cooley. One important event at the close of the year was the examination of Mr. Roberts, of the Pennsylvania, and other railroad managers, in proceedings instituted by the Attorney-General of Pennsylvania to enjoin the coal and railroad pools. The United States Senate had under consideration in December the Reagan Interstate Commerce bill, and there were some indications at the close of the year that after the holiday recess the measure would pass both houses. It did so pass in January, and it was signed by the President on February 4.

The following shows gross and net earnings of the principal trunk roads, the reports, except for the Pennsylvania, being made for fiscal years:

ROADS.	1880-'81.	1881-'82.	1882-'83.	1883-'84.	1884-'85.	1885-'86.
PENNSYLVANIA :						
Gross earnings	\$44,124,182	\$49,079,884	\$51,083,252	\$48,566,911	\$45,615,027	\$50,379,968
Net earnings	17,414,373	18,432,429	19,336,102	18,039,902	16,185,269	17,759,481
NEW YORK CENTRAL :						
Gross earnings	32,348,895	80,628,781	88,770,722	28,148,667	24,429,441	\$30,506,361
Net earnings	7,892,827	5,748,904	7,827,166	4,668,759	8,110,069	11,895,984
ERIE :						
Gross earnings	20,715,605	19,975,774	22,802,246	21,637,435	18,984,573	22,500,046
Net earnings	7,459,375	6,857,651	7,857,663	5,279,358	4,587,056	6,111,408
BALTIMORE AND OHIO :						
Gross earnings	18,463,877	18,833,875	19,739,837	19,436,607	16,616,642	18,422,498
Net earnings	7,973,398	7,454,662	8,705,823	7,760,300	5,648,057	6,386,695

The Stock Market.—There were three prominent movements in the stock market during the year 1886. The first was downward, influenced by the transcontinental war of rates, the unfavorable outlook for the coal properties, and the outbreak of the labor troubles on the Missouri Pacific road. This movement culminated early in May, when a recovery commenced stimulated by the practical collapse of the railroad-strikes and of the eight-hour agitation; by favorable crop reports, and subsequently by a fall in exchange to the gold-importing point; increased railroad earnings, and large purchases of stocks by European traders and investors. Before this movement, which embraced a period of nearly seven months, ended, speculative manipulation had rapidly forced some of the fancy stocks to the highest points, and a panicky fall in December marked the third movement of the year, but the recovery was prompt, and the feeling at the close was more assuring. Out of sixty-four leading stocks, forty-six exhibited gains, comparing the closing with the opening sales of the year, of from $\frac{1}{2}$ to $72\frac{1}{2}$ per cent., the latter Richmond and Danville and the next greatest improvement was in Chattanooga, Manhattan Elevated, Richmond and West Point Terminal, Canada Southern, Erie preferred, Lousiville and Nashville, Memphis and Charleston, Michigan Central, New York and New England, and St. Louis and San Francisco first and second preferred. The declines were greatest in Pacific Mail, Indiana, Bloomington, and Western, and Minneapolis and St. Louis preferred.

After the investment demand for first-class stocks and bonds had been satisfied, early in January, the speculation became dull. Unseasonably mild weather, and reports of a disagreement regarding the output for the first quarter of the year, unfavorably influenced the coal-shares, and a cut in passenger-rates by the Baltimore and Ohio affected the trunk-line stocks. Soon after the middle of the month, advantage was taken by a few speculators of the largely oversold condition of the market, it was sharply turned upward under the lead of Lackawanna, and the tone was strong for the remainder of the month, the movement in the coal-shares being assisted, by rumors subsequently confirmed, of the organization of a syndicate of bankers,

having for their object the reorganization of the Reading and the formation of a new coal combination. Early in February, Lackawanna was further advanced, and the confirmation of the above-mentioned reports aided in giving an additional impetus to the upward movement in the coal-shares. Subsequently, the outbreak of a war of rates between the transcontinental lines of railroad and the Pacific Mail Steamship Company, and the cutting of the tariff to Council Bluffs by the St. Paul, tended to unsettle the stocks of the Pacific roads and of the grangers, and reports of the purchase by Mr. Gowen of the Reading stock owned by the Vanderbilts, encouraged the bears to raid that property, and the market was more or less feverish to the close of the month. The successful strike of the car-drivers in New York and Brooklyn, at the opening of March, attracted attention to the Knights of Labor organization, but the stock market was not unfavorably influenced, and during the first week in the month the tone was generally strong, Reading being affected by news that Mr. Austin Corbin had joined the syndicate. Soon afterward Western Union was broken down by the declaration of a scrip in place of a cash dividend; the strike on the Missouri Pacific, which commenced on the 6th, and the fear that the troubles would extend to other roads, encouraged the bears to make frequent raids upon leading properties, and for the remainder of the month the market was unsettled, and at times panicky, by reason of disquieting rumors and selling of stocks by some of the bull cliques. The cutting of rates by the transcontinental roads was very vigorous, tickets being sold as low as five dollars, by the Union Pacific, from the Missouri river to San Francisco; but concessions on the part of the Atchison, Topeka, and Sante Fé led to a partial compromise of the differences, and, although there was no settlement of the rate war, the contest thereafter was less damaging to the interests involved. The indications at the opening of April pointed to a harmonious adjustment of the labor troubles on the Missouri Pacific, but the refusal of Mr. Hoxie, the general manager of the road, to recognize the Knights of Labor, induced aggressive action on the part of some of the members of the organization, and there was more or less rioting

at East St. Louis, Kansas City, and other points. The places of the striking workmen were, however, gradually filled, and the road was operated without obstruction after the middle of the month. During the second week in April the coal managers agreed upon a basis for continuing the old compact, and this stimulated a rise in the coal-shares. Then followed a general improvement in the market, based upon the collapse of the strike on the Missouri Pacific, and, the short interest being large, the advance was rapid. Toward the close of the month the bears renewed their raids, being encouraged by news that a movement for eight hours' work and ten hours' pay would be inaugurated on the 1st of May. Cutting of rates by the granger roads affected these stocks, and the fall in the market was further assisted by a sharp drop in Consolidated Gas and in Texas Pacific stock and bonds. The tone was unsettled and weak at the end of the month. At the opening of May the eight-hour agitation became quite general; the demands of the workmen were in some cases conceded and in others resisted, and business was so greatly affected all over the country that speculation for a rise, either in stocks or in staples, was discouraged. The rioting at Chicago and Milwaukee during the first few days of the month, and the murderous assault by Anarchists upon the police of the first-named city on the 4th, had more or less influence upon the market; but it was soon seen that public sentiment was being arrayed against the Knights and their movement, and that for this reason, and also because of the determined opposition of the majority of manufacturers to the eight-hour demand, the agitation would have to be abandoned. Thereupon there was a recovery in prices, stimulated by favorable crop reports; the suspension of gold exports, and later in the month, by the settlement of the granger railroad troubles, and also by the operations of bull cliques in these properties. June opened under conditions favoring a further advance in stocks. The combinations in Western properties and in the coal-shares were prepared for a rise; foreign houses were liberal purchasers of the trunk lines, and the movement was generally upward until the close of the month, when bearish demonstrations and realizing sales had a partially unsettling effect. The speculation was irregular early in July. Western Union rose on rumors of a settlement between this company and the Baltimore and Ohio, but when these reports were denied the stock fell heavily. The Erie's advanced on the news of increased earnings, and Indiana, Bloomington, and Western declined in consequence of the appointment of a receiver. Subsequently, Central New Jersey improved on a report that a traffic arrangement would be made with the Baltimore and Ohio; New York and New England was carried upward by purchases for the clique manipulating this property; the coal-shares rose on the news that an advance in the price of coal had been

agreed upon; Texas Pacific stock and bonds were in demand in consequence of a compromise of the differences between the security-holders; representatives of European houses bought liberally, and the market was strong to the end of the month. The adjournment of Congress, increased railroad earnings, the fall in sterling to the gold-importing point, and manipulation of a few specialties by the cliques, contributed to make the market strong early in August. Active money toward the middle of the month; the financial disturbances at Boston resulting from the defalcation of Gray, the mill treasurer; the political crisis in Europe, caused by the deposition of Alexander of Bulgaria, and raiding by the bears, temporarily had an unsettling effect, but later there was a recovery, and the market was comparatively dull to the close. The tendency was very decidedly upward in September, influenced by the arrival of gold from Europe, by largely increased railroad earnings, and by the removal of some of the obstacles to the reorganization of the Reading. Among the features was a sustained advance in New York and New England, in Manitoba, and in Manhattan Elevated. There were occasional reactions, due to realizing sales and bearish demonstrations, but these were followed by prompt recoveries, indicating a very strong undertone. In October there was a rapid advance in leading specialties during the first week, followed by a sharp fall in Central New Jersey, caused by the appointment of new receivers, which had a partially unsettling effect upon the more substantial properties, and the culmination of the bull movement in New York and New England aided a break in the fancy stocks. Later in the week the market recovered, under the lead of Canadian Pacific, Manhattan Elevated, Manitoba, the Nickel Plates, Hocking Valley, and the Vanderbilts, to decline again toward the middle of the month. By the close, however, the movement had become strongly upward, influenced by a rise in the coal-shares, Richmond and West Point Terminal, Consolidated Gas, and Western Union, and the market closed firm. In November the tendency was decidedly toward higher prices, with the most important advances in the above-named stocks, Reading, Canada Southern, Lake Shore, Cleveland, Columbus, Cincinnati, and Indianapolis, and the Eries. About the middle of the month the advance was checked by news of the strike in the pork-packing houses at Chicago, but, when it was seen that the employers were successful in resisting the demands of the men, the market reacted and the feature for the remainder of the month was a sustained rise in low-priced properties, in Richmond and West Point Terminal, Reading, Central New Jersey, and Union Pacific. On the last day of the month the transactions were unprecedented in volume, reaching 908,350 shares, and the largest business was in Reading. Not only was the speculation buoyant at the Stock Ex-

change, but also at the Petroleum Board, in stocks of mining companies, and the advance in some of these was greater than had been witnessed for many years. Early in December there were indications of a speedy culmination in the bull movement. Lenders of money at the Exchange discriminated against stocks which had recently been rapidly advanced, compelling borrowers upon these properties to pay high rates for accommodation. The banks refused to loan upon any except first-class collateral, and commission-houses regarded the market as in a somewhat dangerous condition for speculators on margin. Raids upon some of the inflated stocks were frequent, but at first those attacks had comparatively little influence upon the general market, because the more substantial properties were apparently being largely bought for European account. The news on the 7th of the removal, by Judge Gresham, of the receivers of the Wabash, had an unsettling effect upon the stocks of that company, and encouraged vigorous raids which gradually made a more decided impression upon the market. On the 14th the election for directors of the New York and New England resulted in the defeat of the Boston party, whereupon there was free selling of this stock, and a sharp decline in all the fancy properties. On the following morning the bears made a concerted attack upon the market; New York and New England, Richmond and West Point Terminal, and Reading, fell about 15 per cent., and others in proportion; money rapidly advanced by reason of a calling in of loans by banks and private bankers; there was a panic fall in almost all the stocks, but more particularly in those which had recently been the favorites with speculators, and the market was intensely excited until the last hour of business, when there was a feverish reaction, due mainly to the covering of short contracts by prominent bears. Money was advanced to the equivalent of 186 per cent. per annum during the afternoon, and it closed at 96 per cent. bid. The transactions in stocks greatly exceeded those of November 30, reaching a total of 1,074,000 shares. For the remainder of the week the movement was more or less unsettled, but with an upward inclination. During the early part of the next week there was a feverish decline followed by a dull market, but in the last week of the month of December the movement was more active and generally strong, and it was stimulated on the closing days of the year 1886 by the declaration of dividends on all the Vanderbilt stocks.

The total sales of all stocks for the year 1886 were 100,802,050 shares, against 93,184,478 in 1885; 95,416,368 in 1884; 96,037,905 in 1883; 113,720,665 in 1882; and 113,392,685 in 1881. The transactions in Government bonds during 1886 amounted to \$12,793,500, and in State and railroad bonds to \$607,631,911.

The following is a list of quotations of leading stocks, Jan. 2, 1885, 1886, and 1887:

LEADING STOCKS.	1885.	1886.	1887.
New York Central.....	864	1064	1134
Erie	144	264	344
Lake Shore.....	614	89	964
Michigan Central.....	55	77	984
Rock Island.....	105	1284	1264
Illinois Central.....	1214	140	188
Northwestern, common.....	844	1104	1154
St. Paul, common.....	704	964	904
Dela., Lackawanna, and Western.....	884	1214	1364
Central New Jersey.....	894	44	554

The following is a list of a few of the speculative stocks, the highest prices at which they sold in 1885, and the highest and lowest in 1886:

COMPANIES.	1885.	1886.	
	Highest.	Highest.	Lowest.
Canadian Pacific.....	684	73	61
Canada Southern.....	474	714	344
Central New Jersey.....	52	64	424
Central Pacific.....	49	51	38
Chattanooga.....	50	1054	494
Clev., Col., Cin., and Indianapolis.....	69	754	484
Consolidated Gas.....	1044	111	744
Delaware and Hudson.....	1044	1054	874
Del., Lackawanna, and Western.....	1294	141	115
Erie.....	274	884	224
Hocking Valley.....	43	454	264
Lake Shore.....	894	1004	764
Louisville and Nashville.....	514	69	394
Manhattan El., Consolidated.....	1234	175	1204
Memphis and Charleston.....	44	64	29
Michigan Central.....	794	984	614
Minneapolis and St. Louis.....	26	294	164
Missouri, Kansas, and Texas.....	564	524	40
Missouri Pacific.....	374	384	21
New York Central.....	1114	119	1044
N. Y., Chicago, and St. Louis.....	1074	1174	984
N. Y., Chic., and St. Louis, pref.....	26	37	11
New York and New England.....	894	68	304
Northwestern.....	1154	1204	1044
Northern Pacific.....	814	814	22
Northern Pacific, preferred.....	654	664	534
Ohio.....	284	384	194
Omaha.....	444	55	354
Omaha, preferred.....	1054	116	97
Oregon Navigation.....	1114	1094	93
Oregon Transcontinental.....	864	38	25
Pacific Mail.....	70	67	454
Peoria.....	24	344	16
Reading.....	26	534	184
Richmond and Danville.....	87	200	75
Richmond Terminal.....	484	774	274
St. Paul.....	99	99	824
Texas and Pacific.....	254	284	174
Union Pacific.....	624	632	444
Western Union.....	814	804	604

FINE ARTS. Under this title are treated the principal art events of the past year, ending with December, 1886, including especially the great exhibitions in Europe and the United States, the sales and acquisitions of pictures, and the erection of public statues and monuments.

Paris: Salon.—The exhibition (May 1 to June 30) comprised 5,416 numbers, classified as follows: Paintings, 2,488; cartoons, water-colors, pastels, porcelain pictures, etc., 927; sculpture, 1,279; engraving in medals and precious stones, 46; architecture, 174; engraving, 502. Section of painting, medal of honor, awarded to Jules Lefebvre. No first-class medal awarded. Second-class medals: Victor Maree, Ernest Bordes, Luigi Loir, Eugène Médard, Victor Binet, Gustave Gagliardini, André Brouillet,

Jean Baptiste Olive, Albert Girard, Armand Charnay, Casimir Destrem, Jean Joffroy, Jules Emmanuel Valadon, Achille Cesbron, Paul Albert Baudouin. Third-class medals: Pharaon de Winter, Maurice Lelièvre, Eugène Berthelon, Édouard Vimont, Léon Ruel, Joseph Paul Meslé, Charles Perrandeau, Alexis Marie Lahaye, Paul Sain, Édouard Gelhay, Paul Grolleron, Alfred de Richemont, Enrique Mélida, Joseph Émile Gridel, Juan Luna, René Gilbert, Louis Le Poittevin, Jules Ferry, Hubert Vos, Charles Thomas, François Rivoire, François Halkett, Joseph Bail, Léopold Victor Durangel, Fernand Blayen, Henri Laurent-Desrousseaux, Jules Cavé, Laurent Guérat, Zakarian, Émile Victor Prouvé.

Among the 57 "mentions honorables" in the section of painting are the following American artists: Miss Kathleen Greatorex, John Smith-Lewis, Eugene Vail, Walter MacEwen, William Henry Howe, Herbert Denman, Howard Russell Butler, and J. G. Melchers.

Section of sculpture, no medal of honor awarded. First-class medals: Émile Edmond Peynot, Alfred Boucher. Second-class medals: Louis Gossin, Victorien Bastet, Jean Coulon, Vital Cornu, Amédée Loyseau, Maurice Ferriary, Georges Henri Lemaire (engraving on precious stones). Third-class medals: Jacques Perrin, Henri Désiré Gauqué, Jean Marie Mengue, Emmanuel Dolivet, Frédéric Hexamer, Jean Carles, Gabriel Farail, Émile Laporte, Benoît Lucien Hercule, Charles Alphonse Colle, Henri Auguste Jules Patey (medal engraving). Among the "mentions honorables" are two American sculptors, John Donoghue and J. J. Boyle.

Section of architecture: No medal of honor awarded, and the only first-class medal was given to Victor Auguste Blavette.

Section of engraving: Medal of honor awarded to Léopold Flameng, and the only first-class medal to Alfred Brunet-Debaines.

Among the noteworthy canvases was Benjamin Constant's "Justinian," which filled a large part of one wall in the first room. The Emperor, in violet robes embroidered with gold, and wearing a jeweled diadem, occupies a marble throne in the center, between porphyry pillars, with a bronze victory in a golden niche above; the walls are of marble paneling with mosaic borders, the floor of varicolored marbles; on each side of him are three councilors, seated on gorgeous couches, on the right ecclesiastics, on the left laymen; in the foreground a swarthy, half-clad scribe reads from a papyrus.

Opposite hung Puvis de Chavannes's "Vision Antique" and "Inspiration Chrétienne," two decorative panels, intended, together with the "Sacred Wood" of the *Salon* of 1884, for the Lyons Museum. The "Antique Vision," in which the painter has sought to depict the idea of "form," represents several women grouped in a landscape, watching a troupe of phantom horsemen, apparently from the Par-

thenon frieze, galloping into the background. The "Christian Inspiration," which depicts "sentiment," shows Fra Angelico and his pupils engaged in painting mural pictures in a cloister, while an audience looks on enraptured. Another allegorical picture by the same artist, illustrative of the junction of the Rhône and the Saône, which hung between these two panels in the *Salon*, has no connection with them.

Rochebrune's "Madness of Nebuchadnezar" is an enormous theatrical scene, representing the King in royal robes, groveling at the foot of a long flight of steps, on which are attendants and others.

Ferdinand Humbert's "In War-Time" is a scene in the bombardment of Strasburg. It is intended for the Mairie of the Fifteenth Arrondissement, Paris.

"In Arcady," a picture by an American painter, Alexander Harrison, which has won much commendation, represents three nude Arcadiennes disporting beside a stream in a grassy meadow, under flowering trees bathed in sunshine. Other noteworthy nudes were the "Sang de Venus" of Antonin Mercié, the "Floréal" of Raphael Collin (bought for the Luxembourg), "Love disarmed" of Bouguereau, "Diana at the Bath" of Jules Ferry, "Nymph teasing Cupid" of Léon Perrault, and "Solitude" of Henner. "Orpheline," also by Henner, a pretty little face, enveloped in a black veil, with woolen gloves on the clasped hands, is a masterly picture. Achille Cesbron's "Fleurs du Sommeil," representing Sleep, a nude figure, rising out of a bed of poppies, is a noteworthy piece of decorative work. Juan Luna's "Spoliarium" represents the vaulted apartment under a Roman amphitheatre where the clothing was stripped from the bodies of the dead gladiators dragged thither from the arena. It belongs to the city of Barcelona.

Albrecht de Vriendt's "Men of Ghent doing Homage to Charles V when an Infant," depicts the several estates offering magnificent gifts.

Henri Paul Motte's "Submission of Vercingetorix to Caesar" represents an event which occurred in B. C. 52, after the fall of Alesia, which decided the subjugation of Gaul by the Romans.

Charles Gustave Hellquist's "Embarkation of the Body of Gustavus Adolphus," at Wolgast, in 1633, in order to carry it to Stockholm for burial, belongs to Oscar II, King of Sweden.

Henri Charrier's "Funeral of St. Stephen" was painted for the Church of St. Stephen at Fécamp.

Antonio Casanova's "St. Ferdinand, King of Spain," represents Ferdinand III imitating Christ in washing the feet of twelve poor persons.

Jean Paul Laurens's "Grand Inquisitor before the Catholic Kings" represents Torque-

mada, crucifix in hand, reprobating Ferdinand and Isabella for entertaining a proposition to protect the Jews in Spain, for a money consideration, from the Inquisition.

Among the best of the many military pictures were Aimé Morot's "Rezonville—August 30, 1870," Julien Le Blant's "Combat de Fère-Champenoise—March 25, 1814," and Paul Grolleron's "Episode of the Battle of Loigny." Notable *genre* pictures were Dagnan-Bouveret's "Pain bénit," Ferdinand Heilbuth's "Villegiature," Peter Kroyer's "Departure for Night-Fishing," Ralph Curtis's "Sirocco at Venice," William Kennedy's "Potato-Harvest," Ernest Delahaye's "Farriery," Alfred Bramtot's "Job's Friends," Émile Renouf's "End of the Day," Gérôme's "Œdipus," Julius Melicher's "The Sermon," and Joseph Gueldry's "Metal Scouring."

The *Salon* was marked by an unusual number of still-life pictures, many of them large, by many fine landscapes and marines, and by the usual variety of excellent portraits characteristic of the modern French school.

The exhibition was visited by 372,000 persons, about 30,000 more than were registered in 1885. The receipts from all sources were about 240,200 francs.

Paris : Miscellaneous.—The sale of the works of the late Alphonse de Neuville, held in May, produced more than 300,000 francs. The following were some of the best prices: "Attack by Fire of a Barricaded House," 20,000 francs; "Le Bourget," 15,000 francs, "Le Parlementaire (aquarelle), 20,000 francs (bought by the state); "Le Parlementaire," 27,500 francs (bought by M. Humbert); "Charge at Gravelotte," 11,600 francs; "An Ambuscade," 11,600 francs.

The sale of the Defoer collection, May 22, produced 1,035,550 francs. Some of the best prices obtained were the following, in francs: Corot, "Ponte de Mantes," 18,000; "Nymphs and Fauns," 65,100; "Danse de Nymphes," 15,500; "Château de Pierrefonds," 10,000; Daubigny, "Bords de l'Oise," 14,250; "View of Conflans," 16,500; Decamps, "Garde-Chasse," 36,000; Delacroix, "Christ on the Cross," 29,500; Diaz, "Sun-set," 15,000; Frontent, "Fantasia," 68,000; "Drinking-Place," 16,200; Géricault, "Hussar Trumpeter," 19,500; Meissonier, "1814," 123,000; "Ball-Players at Antibes," 46,700; "The Traveler," 30,500; "The Laugher," 25,000; Millet, "Man with the Hoe," 57,100; "La Lessiveuse," 35,000; "Gleaner," 24,100; "Weed-Burner," 25,000; Théodore Rousseau, "Banks of the Loire," 55,000; "Evening," 27,500; Troyon, "Pasturage," 33,000; "Ox going to Pasture," 17,200; Ziem, "Entrance of Grand Canal at Venice," 24,000.

The collection of Laurent Richard, sold in Paris, May 29, for the aggregate sum of 455,136 francs, comprised both old and modern masters. Among the best prices obtained were: Théodore Rousseau, "Marées dans les Landes,"

20,000 francs; Troyon, "Norman Pasture," 20,000.

The collection of John Saulnier, of Bordeaux, sold in Paris, June 5, brought 587,720 francs, of which nearly 250,000 francs were for works by Corot. Among the best prices were: Corot, "Forest of Coubron," 25,500 francs, "Souvenir du Lac Nemi," 16,000, "The Windmill," 25,000, "Norman Farm," 18,000; Delacroix, "Boissy d'Anglas at the Convention," 40,000, Bordeaux Museum; "Women of Algiers in the Bath," 15,500; J. F. Millet, "Goose Girl," 29,100; Théodore Rousseau, "Spring," 24,500; Tassaert, "Temptation of St. Hilarion," 15,900.

An exhibition of the works of Paul Baudry, deceased, was held at the École des Beaux-Arts in April and May. The catalogue comprised 424 numbers, of which 168 were paintings, and the remainder designs and cartoons. The receipts are to be applied to the erection of a monument to the artist.

Jules Breton has been elected a member of the Academy in place of Paul Baudry, deceased.

The Museum of the Luxembourg has been removed into the building called the Orangery, which is to be extended to meet the growing requirements of the collection.

Munkacsy's "Last Moments of Mozart," was put on exhibition in Paris in February. The dying composer, in a yellow dressing-gown, and seated in an arm-chair, holds in one hand a leaf of the score of the requiem which he had composed to be sung at his funeral, and beats time with the other for a group of singers at the left, who are rehearsing it. Behind him stands his wife and at his right his little son. A third group of friends, near the piano in the background, observe the master with sorrowful countenances.

London : Royal Academy.—The Royal Academy is composed (1886) of 42 academicians, 30 associates, and 6 honorary foreign academicians, viz.: Louis Gallait, Jean Léon Gérôme, Claude Jean Baptiste Guillaume, Louis Pierre Henriquel-Dupont, Ludwig Knaus, and Jean Louis Ernest Meissonier.

Sir Frederick Leighton, President of the Royal Academy, has been created a baronet, and has been elected an associate of the Royal Academy of Belgium to succeed Louis Hague, deceased, and a full member of the Berlin Academy.

The seventeenth winter exhibition (January 4 to March 13) was devoted to works of the old masters and of deceased masters of the British school. The collection contained 210 oil-pictures, and 46 water-color drawings by Joseph M. W. Turner.

The one hundred and eighteenth annual exhibition opened in May, with 1,925 numbers, selected from nearly 9,000 contributions. Of these, 1,111 were oil-paintings, 435 water-colors, and works in black-and-white, 202 architectural drawings, and 177 sculptures.

Among the noteworthy figure-pieces were Mr. Orchardson's "Mariage de Convenience—After," a sequel to the "Mariage de Convenience" of 1884, representing the husband sitting alone in the torture of regret; Alma-Tadema's "An Apodyterium," the dressing-room of a Roman bath, with women in several stages of robing or disrobing; J. W. Waterhouse's "Magic Circle," a sorceress beside a caldron, surrounded by ravens and other instruments of her craft, describing a circle on the ground with her divining rod; P. H. Calderon's "Ruth and Naomi"; John Pettie's "The Chieftain's Candlesticks," two stalwart Highlanders, with claymores in their right hands, holding aloft torches beside their chieftain's chair; Edwin Long's "Pharaoh's Daughter," an Egyptian princess, with attendants, standing at the foot of white-marble steps between sphinxes of red granite; G. H. Boughton's "Councilors of Peter the Headstrong," from Knickerbocker's "History of New York"; Burne-Jones's "Depths of the Sea," a mermaid swimming down and grasping the body of a youth from whose lips air-bubbles are still issuing; and Frederick Goodall's "Susanna," a life-size nude. Notable sculptures were Sir Frederick Leighton's "The Sluggard," Alfred Gilbert's "Enchanted Chair," and C. B. Birch's model for the colossal bronze statue of Major Gen. Earle, to be erected in Liverpool.

London : Grosvenor Gallery.—The exhibition of the works of Sir John Everett Millais in the winter of 1885-'86 included 161 numbers, of which 131 were oil-paintings, and the remainder water-color, pen-and-ink, and pencil drawings. Among the former were "Isabella," the artist's first pre-Raphaelite picture, "Christ in the House of his Parents," otherwise called "The Carpenter's Shop," "A Huguenot," "Black Brunswicker," "Princes in the Tower," and others of his best-known figure-pieces, and some of his most characteristic portraits and landscapes.

The tenth summer exhibition of the Grosvenor Gallery contained 379 works, including oil and water colors, miniatures, and sculpture. Among the noteworthy pictures were three by Burne-Jones, "Sibylla Delphica," "Flamina Vestalis," and "Morning of the Resurrection." George Richmond was represented by his "Hermes," a nearly nude figure of Mercury stooping to untie his sandal, and by several portraits; Alma-Tadema by "Foregone Conclusion," two Roman girls standing at the top of a flight of steps up which a man holding a betrothal ring is coming; J. W. Waterhouse by a "Flower-Market"; George F. Watts by his "Hope" and "The Soul's Prison," allegorical figures; P. H. Calderon by "Cénone," a nearly nude figure sitting in a landscape; and W. Q. Orchardson by "Master Baby," a mother fanning her infant. In sculpture the best work was Alfred Gilbert's bronze statuette of an "Egyptian Girl," which showed excellent modeling.

London : Miscellaneous.—The Cressbrook collection, sold in London, March 27, was formed by Mr. H. McConnell. Among the best works sold were Rosa Bonheur, "Horse Fair" (replica), 3,000 guineas; John Constable, "Rustic Bridge," 1,550 guineas; Mulready, "Idle Boys" (1815), 1,510 guineas; Thomas Webster, "The Smile" and "The Frown," 1,550 guineas; Henrietta Browne, "Visit to the Harem," 1,250 guineas; Clarkson Stanfield, "Port-na-Spania," 1,350 guineas; "Campo Santo at Venice," 2,500 guineas; John Phillip, "The Volunteer" (1862), 1,500 guineas, "Water-Drinkers" (1862), 2,450 guineas; "Early Career of Murillo" (1865), 3,800 guineas.

The William Graham collection, sold in London, April 2-8, realized £69,168 3s., of which £45,757 was obtained for modern pictures. Among the best prices obtained were the following: Millais, "Vale of Rest," £3,150, "Apple-Blossoms," £1,050, "Blind Girl," £871; Burne-Jones, "Chant d'Amour," £3,307, "Laus Veneris," £2,677, "Days of Creation," £1,732, "Feast of Peleus," £945; Rossetti, "Beata Beatrix," £1,209, "La Ghirlandata," £1,050, "Dante at the Bier of Beatrice," £1,050, "Ecce Ancilla Domini," £840; Frederick Walker, "The Bathers," £2,625, "The Vagrants," £1,858, "The Lilies," £1,365, "Sunny Thames," £1,218; G. F. Watts, "Diana and Endymion," £913.

The Blenheim Palace sale, announced for June, was postponed to July on account of the general election. Among the works sold were Albert Cuyp, "Travelers at Inn," 1,750 guineas; Van Dyck, "Madonna," 500 guineas; Rembrandt, "Isaac blessing Jacob," 510 guineas; Teniers, "Card-Players," 550 guineas; Rubens, "Madonna," 1,360 guineas, "Holy Family," 460 guineas, "Adoration of Magi," 1,500 guineas, "Meleager and Atalanta," 520 guineas, "Return of Holy Family," 1,500 guineas, "Holy Family," 1,000 guineas, "Flight of Lot," 1,850 guineas, "Holy Family," 1,200 guineas, "Distribution of the Rosary," 1,510 guineas, "Portrait of Anne of Austria," 3,700 guineas, "Roman Charity," 1,200 guineas, "Venus and Adonis," 7,200 guineas.

Among the anonymous sales in London during the year were Sir Edwin Landseer, "Walter Scott and his Dogs," 1,950 guineas, and "Deer Family," 3,050 guineas; Sir Thomas Lawrence, "Nature," 1,805 guineas.

Berlin : Jubilee Exhibition.—The Royal Academy of Arts of Berlin celebrated (May to October) the centenary of its first exhibition. The Academy was founded in 1699 under Frederick I, but its first exhibition was held in 1786. As the exhibitions were formerly held every second year, that of 1886 was only the fifty-eighth. Although not called so, it was international, and was participated in by English, Austrian, Dutch, Belgian, Spanish, Italian, Russian, and Scandinavian artists, only the French being unrepresented. There were 2,820 entries, classified as follows: Oil-paintings,

1,291; water-colors and drawings, 183; engravings, 96; sculptures, 261; architecture, 383; historical division, 606. The last included the works of deceased artists and early works of the older living artists.

The Museum of Berlin has acquired the portrait of a man, "Jan Arnoultini," by Jan van Eyck. It was formerly in the collection of the Earl of Shrewsbury, Alton Towers, and was sold in 1857 for 36 guineas. At the sale of the Nieuwenhuys collection in London in July it was bought by Sedelmeyer, of Paris, for £326.

Brussels Exhibition.—The exhibition of works of the old masters in the summer was an important event, comprising about three hundred numbers, among them many notable canvases from the museum and from private collections. Some of the works shown were scarcely known except by name.

The Brussels Museum has acquired a portrait by Rembrandt, purchased at Cologne by the Belgian Government for 100,000 francs. It represents an aged woman of the middle class, bears the painter's signature, and belongs to his best period, being dated 1656.

Düsseldorf Exhibition.—The exhibition of the works of old masters (May to October) comprised about four hundred pictures, of which nearly three hundred were by masters of the Dutch school, with Rembrandt at their head. Among them were 127 landscapes and views of towns, 101 *genre* subjects, 47 portraits, 46 still-life, and the remainder religious and historical. A most interesting picture was a mythologic scene by Rembrandt, belonging to Prince Salm-Salm, which is not described by either Vosmaer or Smith. It represents a forest with a stream, and Diana and her nymphs bathing. On one bank is depicted the episode of Acteon, and on the other that of Callisto. This picture, which is dated 1635, is cited by Bode, who knew it only through a copy.

Vienna.—The Austrian Academy of Fine Arts held its sixteenth annual exhibition at Vienna in April and May. The catalogue shows 638 numbers, almost all works of Austrian artists.

The first annual exhibition of Graphic Works of Art was held in Vienna, Dec. 1, 1886, to Jan. 31, 1887. It included copper-plate engravings, etchings, lithographs, wood-engravings, and illustrated *éditions de luxe* and works on art.

United States: Exhibitions, etc.—The National Academy of Design in New York consists of 94 academicians and 57 associates. At the annual meeting, May 12, Arthur Quartley, J. Alden Weir, and Charles Y. Turner were elected academicians; and Hamilton Hamilton, J. Carroll Beckwith, and Joseph Lyman, associates. The sixty-first annual exhibition (April 5 to May 15) contained 843 works contributed by 512 artists. The Clarke prize of \$300 was awarded to Walter Satterlee for his picture entitled "A Winter Watering-Place," representing a woman washing a baby. The three Hallgarten prizes of \$300, \$200, and \$100 were

given respectively to Percy Moran for his "Divided Attention," a young lady reading to a little girl who is watching a cat; W. A. Coffin for his "Moonlight in Harvest"; and Irving R. Wiles for his "Corner Table," a young woman in a restaurant. The sales amounted to \$27,115 for 125 works.

The autumn exhibition (Nov. 22 to Dec. 18) contained 642 works contributed by 405 artists. A new Academy prize of \$300, to be awarded at the same time and in the same manner as the Clarke and the Hallgarten prizes, to the best picture painted in the United States by a woman, has been established by Norman W. Dodge. This will be open to all women, without limitation of age or nationality.

At the second Prize Fund Exhibition held in New York in May by the American Art Association, four prizes of \$2,000 each were awarded to the following: Edward E. Simmons, "Mother and Child"; Frank D. Millet, "At the Inn"; Charles F. Ulrich, "Glassblowers of Murano"; Clifford P. Grayson, "Mid-day Dreams." The four pictures were allotted respectively, by vote of the artists, to the Louisville Art Gallery; Union League Club, New York; Metropolitan Museum, New York; and Corcoran Gallery, Washington. In addition to these cash prizes, which were awarded by a committee of the subscribers to the fund, ten gold medals (\$100 each) were given by the Association to ten other pictures, selected by a committee of artist exhibitors, as follows: Charles H. Davis, "The Close of Day"; Gilbert Gaul, "Holding the Line at All Hazards"; George Inness, Jr., "In the Surf"; Alfred Kappes, "Tattered and Torn"; Carl Marr, "Gossip"; Rhoda Holmes Nicholls, "Those Evening Bells"; Arthur Parton, "Evening after the Rain"; F. K. M. Rehn, "Close of a Summer Day"; D. W. Tryon, "Daybreak"; and H. H. Kitson, "Musique de la Mer" (bronze statuette). There were 302 entries at this exhibition by 211 artists.

The American Water-Color Society's nineteenth exhibition at the National Academy, New York (February 1-27), contained 846 works by 338 artists.

A special exhibition of the French "Impressionists," which opened on April 2 at the American Art Galleries, and again on May 24 at the National Academy, with 310 pictures, contributed by Monet, Manet, Renoir, Pissarro, Degas, Signac, Morizot, Caillebotte, Sisley, Mary Cassatt, and others, aroused considerable curiosity, if not interest.

The eighth exhibition of the Society of American Artists was held in May at the Metropolitan Museum, New York.

The report of the Curator of the Corcoran Gallery, Washington, at the annual meeting of the board of trustees (January 11), shows 205 pictures on exhibition. In 1885 four noteworthy paintings were added: "Coup de main" (Salon, 1880), Émile Renouf; "Going to Drink," Constant Troyon; portrait of Frank-

lin (1782), Joseph Duplessis; and "Rome from the Aventine" (1878), John Rollin Tilton. Corot's "Wood-Gatherers" (1875), bought at the Morgan sale, New York, 1886, for \$15,000, Clifford P. Grayson's "Mid-day Dreams," Knaus's "Old Forester" (Berlin Exhibition, 1886, bought for 45,000 marks), and Thomas Crawford's marble statue of "The Peri at the Gates of Paradise," have been added since January, 1886.

The Boston Art Club's thirty-third exhibition (January 15 to February 18) contained 136 pictures by 108 artists. Charles Sprague Pearce's "Peeling Potatoes," Abbott F. Graves's "Peonies," and W. F. Halsall's marine called "The Rescue," were purchased by the club. The thirty-fourth exhibition, limited to water-colors and works in black-and-white (April 9 to May 8), contained little worthy of note.

The art exhibition of the fourth season of the Southern Exposition, held at Louisville, Ky. (August 28 to October 23), contained 445 pictures, mostly by American painters.

The art department of the St. Louis Exposition, held in the summer, comprised 463 numbers, mostly by American artists. Many of the pictures were from the second Prize Fund Exhibition, New York, including the four prize works. A special feature was the exhibition of De Neuville's "Cemetery of St. Privat" (*Salon*, 1881).

The sale of the art collection of the late ex-Governor Edwin D. Morgan was held in New York in the spring. The amount realized for 152 numbers, including paintings and *brièves-d'bras*, was \$85,000, the highest price, \$7,000, being paid for Jules Breton's "Breton Washer-women" (*Salon*, 1870).

The collections of Fairman Rogers, J. W. Bookwalter, and others, sold in New York, in the spring, brought in the aggregate \$68,000 for 164 works, the highest price, \$5,200, being paid for Ludwig Knaus's "Old Beau." William L. Picknell's "Route de Concarneau" (*Salon*, 1880), which made the artist's reputation, was sold to Thomas B. Clarke, New York, for only \$600.

One of the most important art events of the year was the sale of the collection of Mrs. Mary J. Morgan, at Chickering Hall, New York on the evenings of March 3, 4, and 5, and at the American Art-Gallery on March 8 and succeeding evenings. The catalogue comprised 2,628 numbers, of which 240 were classed as modern paintings, mostly of the French school, 400 as Oriental art-objects, 155 as art in sterling silver, 561 as European ceramics, bronzes, and sculpture, 361 as fine-art and other books, and 911 as engravings and etchings. The total amount realized at the sale was \$1,207,299.30, of which \$885,300 was for paintings, \$286,204.25 for *brièves-d'bras*, etc., \$9,864.30 for books, and \$25,930.75 for engravings and etchings. Some of the highest prices obtained for pictures were: Jules Breton, "The Communicants"

(1884), \$45,500, Donald Smith, Montreal; G. J. Vibert, "Missionary's Story" (1883), \$25,500, C. P. Huntington, New York; G. J. Vibert, "The Cardinal's Menu," \$12,500, Mrs. Arnott, Elmira, N. Y.; J. L. E. Meissonier, "In the Library" (1876), \$16,525, and "Standard-Bearer" (1857), \$15,000, Charles Crocker, San Francisco; J. L. E. Meissonier, "The Vidette" (1883), \$15,000, S. P. Avery, New York; J. B. C. Corot, "Lake Nemi" (1865), \$14,000, S. V. White, Brooklyn, N. Y.; J. B. C. Corot, "Wood-Gatherers" (1875), \$15,000, Coreoran Gallery, Washington; Ludwig Knaus, "Hunter's Repast" (1867), \$16,400, Mrs. Arnott, Elmira, N. Y.; Ludwig Knaus, "Country Store" (1883), \$10,400, S. P. Avery, New York; Ludwig Knaus, "St. Martin's Day" (1877), \$5,700; Théodore Rousseau, "Twilight," \$15,500, Mrs. Arnott, Elmira, N. Y.; J. J. Henner, "La Source" (1881), \$10,100, Donald Smith, Montreal; Charles Bargue, "The Sentinel" (1876), \$12,300, J. L. Martin, Brooklyn, N. Y.; J. F. Millet, "The Spinner," \$14,000; Émile van Marcke, "Mill Farm," \$11,500, Knoedler & Co.; Rosa Bonheur, "Cow and Calf" (1876), \$12,200.

Thomas Ball's bronze statue of Daniel Webster was unveiled at Concord, N. H., on June 17.

Olin L. Warner's bronze statue of William Lloyd Garrison, on Commonwealth Avenue, Boston, was placed upon its pedestal in May.

John Doyle's statue of Senator Hill was unveiled, May 1, at Savannah, Ga.; and on May 6, in the same city, a bronze statue of Gen. Nathanael Greene.

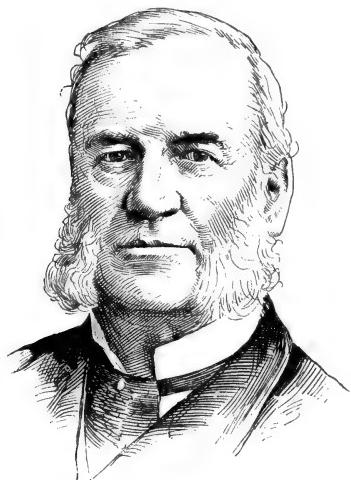
Miss Whitney's marble statue of Harriet Martineau was dedicated at Wellesley College, Needham, Mass., June 21.

Ephraim Keyser's statue of Baron De Kalb was unveiled at Annapolis, Md., on August 16.

The pedestal of the Statue of Liberty, on Bedlow's Island, was finished April 22. The statue was erected during the summer, and was unveiled on October 28 with imposing ceremonies, in which President Cleveland and many other distinguished Americans, Frédéric Auguste Bartholdi, author of the work, and a delegation from the French Republic, took part.

The Soldiers' Memorial Arch, Hartford, Conn., by George Keller, builder of the Garfield memorial at Cleveland, Ohio, and other monuments, was dedicated on September 17. The structure spans a bridge leading to the park, each pier springing from a massive round tower sixty-seven feet in circumference. These towers, which are more than a hundred feet high, terminate in conical roofs, and have canopied niches for statues on their faces. Above the archway, which is about thirty feet in diameter, a sculptured frieze, seven feet high, runs entirely around the monument, the north side representing the "Story of the War," the south the "Return of the Army." The total cost was \$60,000.

FLINT, AUSTIN, an American physician, born in Petersham, Mass., Oct. 20, 1812; died in New York city, March 13, 1886. Dr. Flint came of a long line of professional ancestors, his great-grandfather, Edward, his grandfather, Austin, and his father, Joseph Henshaw, having all been medical practitioners of note. Dr. Austin Flint received his classical education partly at Amherst, and partly at Harvard. In the medical school of the latter he took his degree in 1833, and began practice in Massachusetts, but removed to Buffalo, N. Y., in 1836. He rose to distinction in his profession and in the course of ten years had earned an almost national reputation. In 1846 he founded the "Buffalo Medical and Surgical Journal," which he conducted until 1856. In 1847



AUSTIN FLINT.

he assisted in founding the Buffalo Medical College, in which he held the place of Professor of Medicine, for five years, when he accepted a similar chair in the University of Louisville, where he remained four years, returning in 1856 to the Buffalo College, and assuming the professorship of Pathology and Clinical Medicine. In 1858 he went to New Orleans, and there spent the following three winters as physician in Charity Hospital, and as Professor of Clinical Medicine. He had removed his family to New York city in 1859, and in 1861 was appointed one of the physicians to Bellevue Hospital, and also Professor of Pathology and Practical Medicine in the Long Island College Hospital. The Medical College connected with Bellevue Hospital was founded in 1862, and Dr. Flint was one of the original members of its faculty. His chair was that of the Principles and Practice of Medicine, and Clinical Medicine. He performed the duties of the place until his death. While Dr.

Flint gave to his profession some results of original research, it was as a teacher and author, as a clear judge and applier of the discoveries of others, and as a consulting physician, that his brethren especially valued him; while his kindness, his wisdom, and his charities made him beloved by all classes. Dr. Flint was consulting physician to the Charity Hospital, to the Hospital for the Ruptured and Crippled, to St. Mary's Hospital, and to St. Elizabeth's Hospital. From 1872 till 1885 he held the office of President of the New York Academy of Medicine, but resigned when that body adopted the code permitting consultations with physicians of other than the "regular" school. Dr. Flint was President of the American Medical Association in 1884. He was an active member of many American medical societies, as well as corresponding member of foreign bodies, both medical and scientific. He was a delegate to the International Medical Congress that assembled in Philadelphia in 1876, and there delivered his best-known essay on medicine. In 1881 he was present at the Medical Congress held in London, and in 1884 at the meeting of the same body in Copenhagen, and was elected to preside at the Congress to be held in Washington in 1887.

Among his many contributions to the literature of his profession were essays on "The Variations of Pitch in Percussion and Respiratory Sounds," and "On the Clinical Study of the Heart-Sounds in Health and Disease." These papers received the first prizes given by the American Medical Association in 1852 and 1859. Other works comprise "Clinical Reports on Continued Fever" (Buffalo, 1852); "Clinical Report on Chronic Pleurisy" (1853); "Clinical Report on Dysentery" (1853); "Physical Exploration and Diagnosis of Diseases affecting the Respiratory Organs" (Philadelphia, 1856; third ed., 1868); "Practical Treatise on Diseases of the Heart" (1859; second ed., 1870); "Treatise on the Principles and Practice of Medicine," of which more than 40,000 copies have been sold (1866; fifth ed., 1881); "Contributions relating to Camp-Diseases" (New York, 1867); "Essays on Conservative Medicine and Kindred Topics" (Philadelphia, 1874); "Pthysis, its Morbid Anatomy, Etiology, Symptomatic Events and Complications, Fatality and Prognosis, Treatment and Physical Diagnosis" (1875); "Manual of Auscultation and Percussion" (1876); "Clinical Medicine, a Systematic Treatise on the Diagnosis and Treatment of Disease" (1879); "Physical Exploration of the Chest by Means of Auscultation and Percussion" (1882); and "Medical Ethics and Etiquette" (New York, 1883). Prof. Flint had been appointed to read the address on medicine before the British Medical Association at its meeting in 1886. The address, entitled "Medicine of the Future," was found complete among his papers, and was published posthumously (New York, 1886).

FLORIDA. State Government.—The following were the State officers during the year: Governor, Edward A. Perry, Democrat; Lieutenant-Governor, Milton H. Mabry; Secretary of State, John L. Crawford; Comptroller, William D. Barnes; Treasurer, Edward S. Crill; Attorney-General, C. M. Cooper; Superintendent of Public Instruction, Albert J. Russell; Commissioner of Lands and Immigration, C. L. Mitchell. Supreme Court: Chief-Judge, George G. McWhorter; Associate Justices, G. P. Raney and R. B. Van Valkenburgh.

Financial.—The assessed value of property in 1885 was \$70,667,458; general revenue tax, \$237,816.53; school-fund tax, \$70,823.69; total gross tax, \$308,640.22; net tax, after deducting insolvencies, etc., \$277,770.64; license-taxes, \$132,350.58; county tax proper, \$292,817.11; county school, \$233,566.48; county road, \$60,784.11; county special, \$86,920.52; total for county purposes, \$674,088.22. In 1880 the assessment-roll showed the value of the taxable property to be \$31,157,846; in 1881, it was \$36,243,543; in 1882, \$45,285,977; in 1883, \$55,249,811; in 1884, \$60,042,655; and in 1885, \$70,667,458, being an increase of about \$40,000,000 in five years, of 100 per cent. in four years, and \$10,000,000 in one year.

The bonded debt is, 7 per cent. bonds of 1871, \$350,000; 6 per cent. bonds of 1873, \$925,000. Total, \$1,275,000. Deduct bonds of 1871 and 1873 in sinking-funds, \$207,600. Outstanding, \$1,067,400, of which \$594,700 are held in the different educational funds of the State.

The following taxes were collected from defaulting railroad companies: Florida Railway and Navigation Company, State taxes, \$67,368.49, and county taxes, \$122,705.12; Jacksonville, Tampa, and Key West, State taxes, \$1,320, and county taxes, \$2,835; Pensacola and Atlantic, State taxes, \$1,600, and county taxes, \$1,753.

Education.—The number of public schools in operation for the year ending Sept. 30, 1885, was 1,724, an increase of 220 for the year. The number of total school attendance for the year ending Sept. 30, 1885, was 62,327, an increase of 4,016 in the total attendance of pupils for the year. The reports of the county superintendents of amount taxed the counties show that, together with the State tax of one mill, and the common school fund, there was raised and expended for public schools alone, outside of the seminaries, normal schools, and State College, \$335,000 making a per capita cost of education for all the school-children of lawful age of \$5.01, and a cost of \$5.37 for each child enrolled, and a cost of \$7.35 for each child in daily average attendance upon the schools.

The Institution for the Education of the Blind and the Deaf and Dumb Children of the State is open to all between the ages of nine and twenty-one years, and has excellent teachers. But as yet it has seemed impossible to move the parents of these unfortunate persons to send

them to this school, and there are now in attendance but eleven pupils.

There was organized a normal school at Tallahassee for the instruction of colored teachers, continuing two months, at which there were forty-six teachers in attendance. There was also organized a similar school at Gainesville, having in attendance fifty-three students. The Superintendent complains of the small attendance at these normal schools, and questions the policy of continuing the appropriations.

The East and West Florida Seminaries are in successful operation, doing excellent work in both a literary and normal course of instruction.

The State Agricultural College, at Lake City, is prepared for the reception and instruction of students. During 1884-'85 the Superintendent held public meetings at important points in twenty-two of the counties of the State, and addressed the people upon the subject of popular education, and conducted teachers' institutes in sixteen of these counties, holding them in session one and two weeks. Four hundred and ninety-seven teachers were brought under the influence of these institutes.

Political.—On the 2d of November two members of Congress and members of the Legislature were chosen. The Democratic candidates for Congress, Robert H. M. Davidson, First District, and Charles Dougherty, Second District, were elected. The vote was as follows: First District, Democratic, 14,493; Republican, 7,392. Second District, Democratic, 18,890; Republicans, 15,762.

The following is the composition of the Legislature: Senate, Democrats, 24; Republicans, 5; Independent Democrats, 2; Independent, 1; total, 32. Democratic majority over all, 16; House, Democrats, 55; Republicans, 13; Independent Republican, 1; Independent Democrats, 4; Independents, 3; total, 76. Democratic majority over all, 34. Democratic majority over all on joint ballot, 50. It is thought the Independent Democrats and Independents will work with the Democrats.

At the same time the new Constitution was ratified by a vote of 31,803 for, to 21,243 against. Article XIX, separately submitted, was ratified by a vote of 29,931 for, to 12,902 against. The next session of the Legislature will convene on the first Tuesday after the first Monday in April, 1887.

Census Statistics.—The following are the returns of the census of 1885 relative to farms: Acres of land improved, 739,752; acres of land unimproved, 2,245,171; value of farms, including land, fences, and buildings, \$60,884,392; value of live-stock, \$7,779,064; number of horses, 11,848; of mules and asses, 7,704; of neat-cattle, 577,566; gallons of milk sold in 1884, 82,905; pounds of butter made on farms in 1884, 373,370; number of sheep, 100,662; pounds of wool, spring clip, 193,558; number of swine, 190,442; of poultry, 480,225; dozens of

eggs produced in 1884, 1,103,750; pounds of rice produced in 1884, 855,529; bushels of corn produced in 1884, 2,511,835; of oats, same year, 378,606; bales of cotton in 1884, 45,596; hogheads of sugar, same year, 2,202; gallons of molasses in 1884, 609,047; bushels of Irish potatoes, 57,404, and sweet-potatoes, 1,427,629 in 1884; pounds of tobacco, same year, 32,339; number of bearing orange-trees in 1884, 979,-911; boxes of oranges that year, 431,832; bushels of peaches in 1884, 86,505; total value of orchard products in 1884, \$1,092,439; value of market-garden produce sold in 1884, \$871,-439; pounds of honey produced in 1884, 353,-481; pounds of wax the same year, 26,276. These returns, however, are not considered very complete.

Cold.—In January the severest cold spell since 1835 occurred in the State, causing great damage to fruit and fruit-trees. On Friday, the 8th, a very heavy westerly gale prevailed all day. At dark on the 9th the temperature began to fall rapidly, and on Saturday morning it was 4° below freezing-point. On Sunday morning it had fallen to 21° at Sanford, and about the same at Orlando and Tampa; 18° at Fruitland and Switzerland, Jacksonville, and Fernandina; on Monday, the 11th, it was 24° at Sanford, 25° at Lakeland, about 22° at Volusia, and 20° at Jacksonville and Fernandina; Tuesday morning, 24° at Sanford, 26° at Volusia. On Wednesday morning the weather moderated and the sun shone part of the day, thawing out the frozen fruit. On Thursday the day was cool and cloudy—temperature about 50°. The lowest degree of cold in Fernandina was 15°, and on Orange Lake 16°, by ordinary instruments.

The earliest relation we have of any cold weather in Florida is a statement made by John Bartram, the botanist, who says that on Jan. 3, 1765, on the St. John's river, south of Lake George, the thermometer was at 26°, the wind northwest, and the ground frozen an inch thick, and this was the night that destroyed the lime, citron, and banana trees in St. Augustine. In 1774 there was a snow-storm, which extended over most of Florida. In 1822, it is said, the cold was so intense in West Florida that all the fruit-trees were killed, and several persons frozen to death. On April 6, 1828, a heavy and destructive frost occurred in East Florida. The temperature was as low as 27°. About Feb. 8, 1835, the severest cold ever known in Florida was experienced. The weather had been warm and the trees were about blooming. A northwest wind set in, which blew violently for about three days, when the temperature went down to 7° above zero. St. John's river was frozen several rods from the shore, and all kinds of fruit-trees were killed, the wild groves suffering equally with the cultivated. Yet, notwithstanding the severity of this freeze, the wild groves south of Volusia were not killed down, and were bearing in 1837.

FORSTER, William Edward, an English statesman, born in Bradpole, Dorsetshire, July 11, 1818; died in London, April 5, 1886. He was the son of a Quaker preacher, and received his early education at a Friends' school, after which he was put into business and soon became a manufacturer at Bradford, ultimately becoming joint owner of the great worsted and alpaca mill at Burley-in-Wharfedale. His first public act of importance was to accompany his father into the famine-stricken districts of Connemara, in the winter of 1846-'47, as distributor of the relief fund collected by the Friends. He published an account of the misery he witnessed, concluding with the opinion that "The result of our social system is that vast numbers of our fellow-countrymen have not leave to live," adding, "No one of us can have a right to enjoy either riches or repose till he strive to wash his hands of the guilt of such inequality." In 1849 he wrote an introduction to Clarkson's "Life of William Penn," in which he defended the founder of Pennsylvania from the aspersions cast on his memory by Macaulay. In 1850 he severed his connection with the Friends by marrying outside the society, choosing for his wife the eldest daughter of Dr. Arnold, of Rugby. After his marriage he connected himself with the Church of England. In 1859 he adopted the two orphan children of his wife's brother. He always looked forward to a parliamentary career; but it was not until his fortieth year that he began to take an active part in public affairs, speaking and lecturing in his own neighborhood on Indian finance and other political subjects. He was defeated as an Advanced Liberal candidate for Leeds, but, upon the occurrence of a vacancy in the representation of Bradford in 1861, he was returned by that town as member of Parliament in the Liberal interest, and was re-elected at the general election of 1865. In 1865 he was appointed Under-Secretary for the Colonies. In 1866 he defended Mr. Gladstone's reform bill, which was ultimately lost by the desertion of the Lowe faction, and foreshadowed other reforms that were to follow, such as "to make Ireland loyal and contented," to give the agricultural laborer "a better hope than the workhouse in his old age," and especially "to have Old England as well taught as New England." When the question of popular education was forced on the attention of the country by the passage of Disraeli's reform bill, Forster identified himself with the party in favor of religious education and clerical supervision, as opposed to the secular schools that were favored by the great mass of the Dissenters. He and Cardwell, his former chief in the Colonial Office, introduced education bills in 1867 and 1868 for the purpose of provoking discussion. In 1868 the Dissenters set up an opposition Liberal candidate in Bradford, but Forster was returned at the head of the poll. When

Gladstone formed his Cabinet, he intrusted Forster with the task of preparing the educational legislation by making him Vice-President of the Council. In February, 1870, he introduced his education bill, which establishes universal and compulsory primary education, but provides public schools only where churches and private individuals did not maintain schools from motives of charity or religious proselytism. His purpose was to furnish the rudiments of education to the 25 per cent. of the people of England who were growing up in complete ignorance, without adding appreciably to the burden of taxation, and without assuming any state control, except to see that a certain low standard was kept up. The task of maintaining the public schools was delegated to new local bodies, called school boards. The slight supervision assumed by the Government was to be compensated by subsidies from the treasury both to the board schools and the voluntary schools. Education was to be compulsory, but not gratuitous, for parents were compelled to pay school fees, unless they were remitted on the ground of pauperism. The school boards, were left free to decide what religious instruction should be given, were to be elected by the town councils or vestries, and were empowered to pay the fees of needy children in the voluntary church schools out of the rates. The Dissenters raised a storm of protests against the whole bill, and especially against these last provisions, which they defeated, making the school boards elective by universal suffrage. They still considered the school system an engine for spreading the doctrines of the Church of England by the aid of public money, and for strengthening the connection between church and state, just after the disestablishment of the Irish Church had been carried. After carrying through the education bill, Forster's next important task was to secure the passage of the ballot bill, which was passed by the House of Commons in 1871, but was rejected by the House of Lords, and was again carried by his skillful tactics through the Commons in 1872, after three months of discussion, and finally enacted. In 1874 Mr. Forster was again returned for Bradford, in spite of the opposition of the Nonconformists. During the Conservative administration he practically led the Opposition in the debates, though on the retirement of Mr. Gladstone from the leadership of the Liberal party in 1875, the Marquis of Hartington was chosen for the post, with the support of the Radical section, while Mr. Forster was the choice of the aristocratic Whigs. He was elected rector of Aberdeen University in 1876, and delivered there an interesting address. In the autumn of that year he visited Servia and Turkey, and on his return he delivered a speech to his constituents, in which, and in the debates on the Eastern question in the House of Commons, he upheld the ideas of vigorous foreign action and an imperialistic

policy, though without expressing approbation of the details of the Tory policy. In foreign, and especially colonial questions, he held different views from the bulk of the Liberal party. He was one of the first advocates of imperial federation, but in a form in which England would regain a controlling influence over the colonies. In South Africa he endeavored to persuade the Liberals to pursue the policy of interference and coercion adopted by the Tory party, advancing as a motive the duty of protecting the natives, as well as that of preserving the English supremacy. After the accession of the Liberals to power in 1880, he was appointed to the post of Chief Secretary for Ireland. The compensation-for-disturbance bill was carried in the House of Commons, but rejected by the peers. Agrarian crimes increased, and troops were sent to Ireland. Members of the Land League were brought to trial, and more and more vigorous measures were taken by the Irish Secretary to suppress disorder. On Jan. 24, 1881, he introduced a bill to give the executive extraordinary powers, which was passed after a stubborn contest with the Irish obstructionists. In a short time over nine hundred suspects were imprisoned without trial, among them leaders of the Irish parliamentary party. Forster, who had gone to Ireland as the representative of a policy of conciliation and land reform, became the most odious Irish Secretary that was ever sent to Dublin. For giving directions for the troops to disperse threatening gatherings with shot, he was given the nickname of "Buckshot Forster." The Irish members attacked him incessantly in Parliament. After the close of the session he had Parnell, Sexton, Quinn, O'Kelly, O'Brien, and other prominent members of the Irish party, arrested and imprisoned as suspects, and on Oct. 20, 1881, suppressed the Land League by proclamation, on the ground that it was a treasonable association. In the spring of 1882 he demanded fresh powers, but instead of that the majority of the Cabinet decided that the Irish leaders should be released from jail. In consequence of this decision he resigned, with Lord Cowper, the Lord Lieutenant, on May 2, 1882. The murder of Lord Frederick Cavendish, his successor, justified Mr. Forster in the eyes of all who approved of a vigorous Irish policy. It afterward came out that the same band of Fenians had laid a plot more than once to take Forster's own life. Thenceforth he acted with the Tory party on the Irish question, endeavoring to fasten the guilt of this murder and other crimes on the Irish leaders, and to bring odium upon the Government for obtaining the promise from Mr. Parnell, known as the "Treaty of Kilmainham." He published a pamphlet called "The Truth about Ireland," and in the next session of Parliament delivered an attack on the Parnellites, in which he repeated the accusations contained in the pamphlet. When he charged Parnell with having "connived at out-

rages and murder," the Irish members gave him the lie direct, and refused to controvert his insinuations or debate the subject. As an independent member he assailed the Egyptian and colonial, as well as the Irish, policy of the Government. He advocated a policy of annexation in Egypt, and aggressive action against the Dutch in South Africa, and became the champion of the scheme of imperial federation, for which he wrote and spoke frequently. After the fall of Khartoum he joined Mr. Goschen in voting against the Government on a motion of censure. He took a prominent part in the debates on the county franchise bill, always speaking and voting in its favor. The caucus system of Mr. Chamberlain incurred his active antagonism. He refused to have anything to do with the Liberal Association that was organized in Bradford, but in the next election that body opposed his candidacy, and he was returned by the central division of the three into which the burrough was divided. He already lay ill at his house in London, and was never able to take his seat in Parliament. In his memorial remarks in the House of Commons Mr. Gladstone spoke of him as "a man that never deviated from the straight path he had marked out for himself; a man of unflinching courage, although a lover of peace; a man profoundly attached to the greatness and welfare of his country, and acutely sensible of whatever appertained to its honor."

FRANCE, a republic in Western Europe, established on Sept. 4, 1870. The Constitution, adopted on Feb. 25, 1875, and revised in July, 1884, and by the adoption of the *scrutin de liste* on June 16, 1885, vests the legislative power in the National Assembly, and the executive in the President of the Republic, who is elected by the joint ballot of the two chambers for the term of seven years. The Senate consists of 300 members, elected for the period of nine years by delegates of the communes. Originally one quarter of the senators were elected for life, and all the communes were equally represented, irrespective of their size; but by the amendment of 1884 the life-seats, as they become vacant, are distributed among the larger communes, Paris choosing 30 senators and other large cities from 10 to 20. The Chamber of Deputies has 584 members, including 6 from Algeria and 10 from the colonies, elected for four years by universal suffrage. Each department elects its representatives, under the *scrutin de liste*, on a collective ticket, embracing from 3 names in the smallest departments to 38 in that of the Seine. There were 10,367,202 electors in France and Algeria in 1885, of whom 7,769,629 voted in the general election. Senators receive 15,000, and deputies 9,000 francs per annum. Both chambers have the power of initiating laws, except financial laws, which must first be presented to the Chamber.

The Government.—The President of the Re-

public is François P. Jules Grévy, born Aug. 15, 1813, who was first elected on Jan. 30, 1879, and re-elected on Dec. 28, 1885. The Right proposed in the Congress to postpone the election until the vacant seats in the Chamber of Deputies were filled, but the President was supported by the Republicans in ruling that the Congress was only empowered to elect a President, and could not consider a motion of any kind. A stormy scene ensued, which lasted for two hours. This attempt of the Monarchs to distract and discredit the proceedings hurt their own prospects, and checked the reaction against the republic that set in after the failure of Ferry's colonial policy in Tonquin and the discovery of the deficit. In the supplementary elections the Republicans were generally successful. The extraordinary session of the Assembly was closed on the day following the presidential election. On entering upon his new term of office President Grévy, according to custom, pardoned all convicted political offenders. Among others, Prince Krapotkine and Louise Michel regained their liberty.

The Brisson Cabinet, which was constituted after the fall of Ferry in April, 1885, only in order to bridge over the period of the general elections and the election of a new President, sustained a substantial defeat on the 24th of December, 1885, when the credit demanded for Tonquin and Madagascar obtained only a majority of four votes in the Chamber. Accordingly, after the re-election of M. Grévy and the close of the session of 1885, M. Brisson and his colleagues handed in their resignations.

A new Ministry was constituted on Jan. 7, 1886, composed of the following members: President of the Council and Ministers of Foreign Affairs, Charles Louis de Saulces de Freycinet, who held the same portfolio in the Brisson Cabinet; Minister of the Interior, Jean Louis Ferdinand Sarrien, previously Minister of Posts and Telegraphs; Minister of Justice, Charles Étienne Demôle, who held the post of Minister of Public Works in the last Cabinet; Minister of Finance, Marie François Sadi-Carnot; Minister of Public Instruction, René Goblet, who had held the same office under Brisson; Minister of Commerce and Industry, Edouard Étienne Antoine Simon Lockroy, the Radical journalist and representative of the Seine Department; Minister of Agriculture, Jean Paul Develle; Minister of War, Gen. Boulanger; Minister of Marine and the Colonies, Admiral Aube; Minister of Posts and Telegraphs, Étienne Armand Félix Granet; Minister of Public Works, Charles Baihaut.

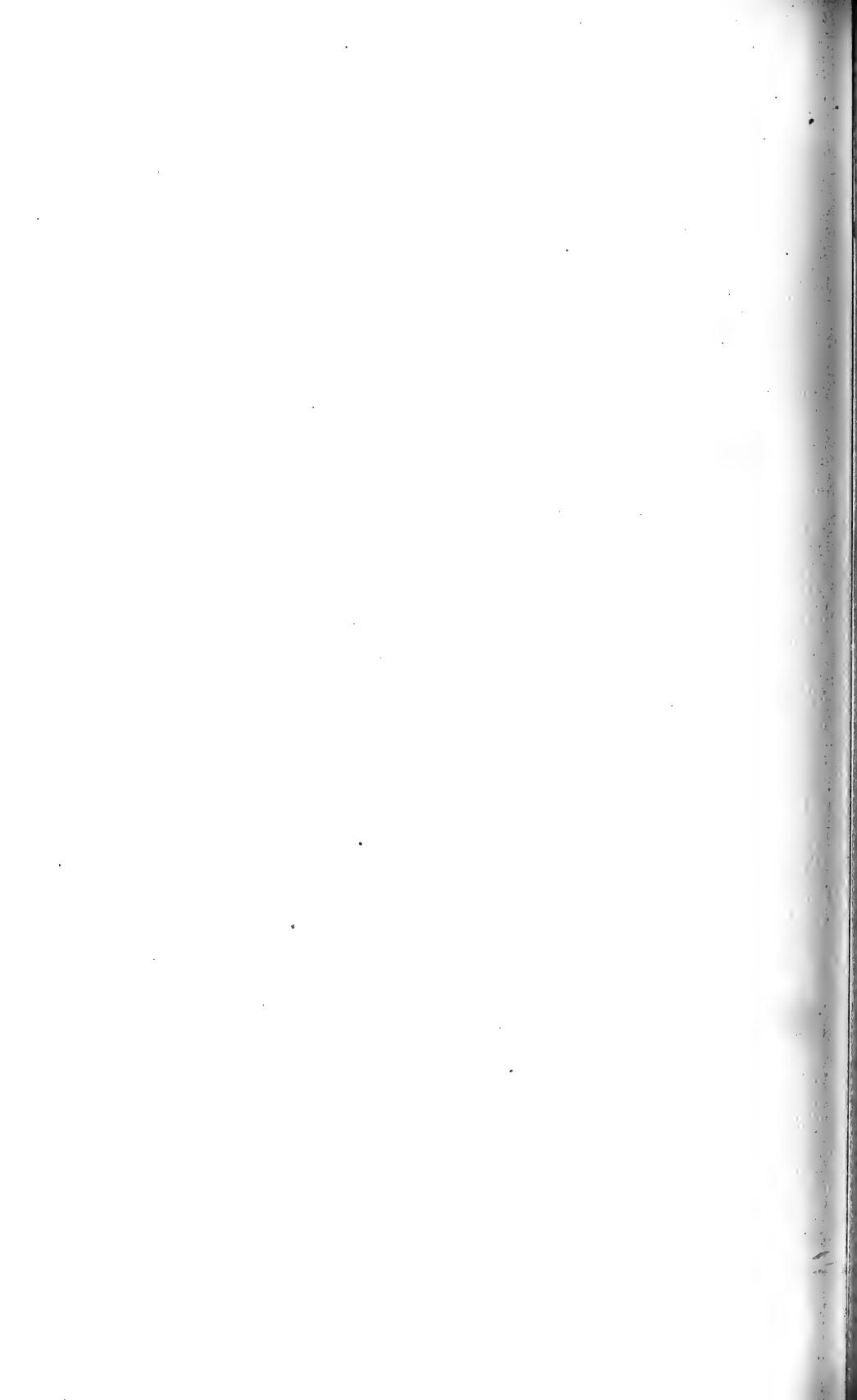
Area and Population.—The area of France is 204,177 square miles. The population on Dec. 18, 1881, was 37,672,048, the proportion to the square mile being 184, as compared with 213 in Germany, and 300 in Great Britain and Ireland. The number of marriages in 1884 was 289,555; the number of births, 937,758, not including 45,286 still-born; the number of



Engraved by C. D. Kamm, New York

Général Boulanger

WAR MINISTER OF FRANCE



deaths, 858,784; the natural increase of population, 78,974. The total emigration in 1884 was 6,100. The number of foreigners resident in France in 1881 was 1,001,090, of whom 374,498 were Belgians, 165,313 Italians, 62,437 Spaniards, 59,028 Germans, 50,203 Swiss, 30,077 English, 21,232 Dutch, 12,090 Austrians, and 10,489 Russians. There were besides 77,046 naturalized foreigners. Paris contained on May 30, 1886, 2,265,080 inhabitants.

Commerce and Industry.—The returns of the general commerce for 1884 give the total value of imports as 5,239,000,000 francs, and of exports as 4,218,400,000 francs.

The following table shows, in millions of francs, the value of the special commerce of France with the leading foreign countries and colonies in 1884:

COUNTRIES.	Imports from—	Exports to—
Great Britain.....	616	842
Belgium.....	463	456
Germany.....	416	328
Italy.....	369	172
Spain.....	295	138
United States.....	279	275
British India.....	236	9 2
Russia.....	219	18
Argentine Republic.....	196	119
Austria.....	111	20
Turkey.....	124	47
Switzerland.....	116	218
Algeria.....	102	147
China.....	87	4

The total value of the imports entered for home consumption in 1885 was 4,215,877,000 francs, against 4,343,478,803 francs in 1884; the value of the exports of domestic products 3,185,031,000, against 3,232,500,211 francs. The imports of articles of food and consumption in 1884 amounted to 1,438,430,000 francs, exports to 783,411,000 francs; the imports of raw materials to 2,208,405,000 francs, the exports to 759,130,000 francs; the imports of manufactured articles to 696,644,000 francs, exports to 1,689,958,000 francs. The imports of coin and bullion amounted to 228,696,000 francs, and the exports to 128,175,000 francs. Cereals were imported to the amount of 360,200,000 francs, and exported to that of 44,900,000 francs. The imports of wines amounted to 344,300,000 francs, and the exports to 237,300,000 francs. During the past ten years the import of manufactured goods has increased 82 per cent. The increase has been greatest in machinery, iron ships, metal goods, woolens, cottons, and leather. The export of silk and silk goods fell from 301,419,000 francs in 1873 to 226,745,000 francs in 1878, rose to 301,200,000 francs in 1883, and fell to 236,800,000 francs in 1884, besides 155,200,000 francs of raw silk. The export of woolen fabrics was 309,300,000 francs in 1878, 401,900,000 francs in 1882, 370,100,000 francs in 1883, and 334,300,000 francs in 1884. The domestic production of raw silk was over 100,000,000 francs in annual value before the silk-worm epidemic of 1851. In 1882 the production was

9,721,206 kilogrammes of cocoons; in 1884 only 6,196,994 kilogrammes, valued at 22,681,000 francs. The average wine-crop for five years ending with 1884 was 700,000,000 gallons, that of 1884 being 782,566,000 gallons. The yield in 1885 was only 642,083,000 gallons; the acreage was 4,970,000, showing a decrease of nearly 1,000,000 acres in ten years. The vintage of 1875, just before the ravages of the phylloxera began, was 1,209,350,000 gallons, the exports 81,767,000 gallons, and the imports only 6,000,000 gallons. In 1885 there were 182,587,000 gallons imported and 55,575,000 exported. The 1,204,145 acres under beet-root in 1883 yielded 322,303,120 cwt. of sugar. The coal production in 1884 was 20,127,209 tons; the consumption of iron-ore, 5,371,000 tons in 1883, including 1,412,710 tons imported; the pig-iron product, 2,039,000 tons, while 308,170 tons were imported; the quantity of wrought-iron produced in 1884, 877,826 tons, against 978,917 in 1883; the steel product, 509,516 tons, against 521,820. The mineral products in 1882 were valued at 299,932,511 francs; metallurgical products at 591,824,853.

Navigation.—The number of vessels entered at French ports during 1884 was 101,327; the number cleared, 103,036; of 17,951,963 tons. Of the 17,531,561 tons entered, 8,493,747 tons were under foreign flags. The number of foreign vessels was 23,501; of French vessels, 77,826, of which 8,907, of 4,272,019 tons, were engaged in foreign commerce, and 68,919, of 4,765,795 tons, in the coasting-trade. The merchant navy on Jan. 1, 1885, numbered 15,352 vessels, of an aggregate tonnage of 1,033,829 tons, giving employment to 96,299 sailors and fishermen, including 11,219 vessels under 30 tons. Of the total 1,414, of 751,650 tons, were engaged in foreign commerce; 2,160, of 106,234 tons in the coasting-trade; 535, of 57,767 tons in deep-sea fishing; 10,075, of 83,332 tons, in coast-fishing; and 1,168, of 34,846 tons, were pilot craft, yachts, etc.

Railroads.—The length of railroads in operation at the close of 1884 was 29,363 kilometres. Six great companies own the main lines, called the old network, which had on Jan. 1, 1884, a total length of 10,877 kilometres, and yielded in 1883 in gross earnings the sum of 787,262,840 francs. The same companies had 10,993 kilometres of subsidiary lines, from which the receipts were 256,836,771 francs. From the 4,396 kilometres of the new network belonging to the state the receipts were only 35,638,542 francs.

Telegraphs.—In the beginning of 1884 there were 90,472 kilometres of telegraph lines, with 328,753 kilometres of wire, the number of dispatches in 1883 was 29,452,708, including 5,005,376 international messages.

The Post-Office.—The number of letters transmitted during 1883 was 613,861,000; of postal-cards, 32,961,000; of journals, 329,752,000. The receipts were 128,582,045 francs in 1883; the expenses, 113,577,052 francs.

Finance.—The budget of 1886, presented to the Chamber in February, 1885, estimated the ordinary revenue at 3,030,660,651 francs, and the ordinary expenditures at 3,030,612,388 francs. The extraordinary expenditures were calculated at 169,808,200 francs, balanced by the receipts, the special resources at 470,175,-043 francs, and special budgets at 76,863,191 francs, making the total revenue for 1886, 3,747,507,085 francs, and the total expenditure 3,747,458,822 francs. The totals voted by the Chamber in August, 1885, were 3,729,561,188, and 3,729,948,164 francs respectively. The extraordinary credits voted in 1885 were exceeded to the amount of 65,106,326 francs, while a supplementary credit of 200,000,000 francs was voted for Tonquin, and the revenue from taxation fell below the estimates 21,000,-000, leaving a deficit in the accounts for 1885 of about 286,000,000 francs. The deficiency in the revenue from 1880 to the 1st of January, 1885, amounted to the sum of 607,265,563 francs. The nominal capital of the consolidated debt is, according to the budget of 1886, 19,722,645,866 francs, and the annual rentes 706,115,779 francs.

The Army.—The budget for 1886 fixed the strength of the French army at 523,833 men, including those on furlough, with 131,885 horses. Excluding the gendarmerie, there are 497,458 men, of whom 52,052 are quartered in Algeria. The expenditure for the army in 1886 was set down as 657,661,360 francs. Including the various classes of reserves, France can raise an army of about 2,500,000 men who have received military training, and can call upon 1,250,000 more that are capable of bearing arms.

The Navy.—The French navy numbers 389 effective vessels, of all descriptions. In the beginning of 1886 there were 20 squadron ironclads completed, 11 ironclad cruisers, 11 guardships that were plated, and 4 armored gun-boats. There were 2 torpedo-vessels, 18 torpedo-boats of the first class, and 43 of the second class. The most powerful ship is the "Amiral Baudin," with 11,200 tons displacement, carrying three 14½-inch guns and six of smaller caliber. The "Carman" and "Requin," launched in 1885, having two barbette towers, mounting 16½-inch, or 7¾-ton, guns, are sister ships to the "Indomptable" and "Terrible." The "Formidable," launched in April, 1885, is a monster ironclad of 11,200 tons, of the same type as the "Amiral Baudin." Six other first-class battle-ships, of 10,400 tons, estimated to cost from 9,000,000 to 11,000,000 francs each, were building, besides 11 gun-boats, 3 torpedo-cruisers, 3 torpedo dispatch-boats, a number of sea-going torpedo-boats, and several dispatch-boats. In the later ironclads horizontal steel armor is used to protect the decks, and the guns are mounted *en barbette*, and are capable of being pointed in nearly every direction. The total value of the fleet was estimated on Jan. 1, 1886, to be 599,886,411

francs. The sum allotted to the navy in the budget of 1886 was 200,392,937 francs. A powerful party in the French navy is opposed to building any more large ironclads. After the advent of Admiral Aube, the new Minister of the Navy, 26 first-class torpedo-boats, to cost 175,000 francs each, were ordered. Each boat is to have two torpedo launching-tubes, and to carry four torpedoes, and will be constructed in seven water-tight compartments. They must be capable of a maximum speed of 20 knots. Two twin screw-steamer, the "Sureau" and "Torbis," were begun in the summer of 1886. They will have a speed of 19½ knots, and carry machine-guns, mitrailleuses, 5½-inch guns, and each will have five launching-tubes for torpedoes. Admiral Aube, the new Minister for Naval Affairs, was an old Republican, but no party man. He has often shown sympathy with the Catholics, and recognition of their services to France in the East. He was highly respected for his integrity and his professional ability. He expects the torpedo to play a leading part in the naval warfare of the future. Consequently, his appointment was taken to signify a cessation of the construction of great ironclads.

The Legislative Session.—The new Cabinet was variously designated as the "long-desired reform ministry," or as simply as a "working Cabinet," or derisively, from its heterogeneous composition, as "Noah's Ark." A peaceful policy was inaugurated in Tonquin by the recall of Gen. de Courcy, and the appointment of Paul Bert as civil governor. M. de Freycinet announced that the protectorate over Annam and that over Madagascar, with which a treaty had just been concluded, would rest on a simple basis. The Minister of War promised a saving of 40,000,000 francs in his department, and at the same time a vigorous prosecution of the army reorganization. The naval minister promised retrenchments to the amount of 10,000,000 francs. M. Lockroy began his ministerial career with a proposal for an exposition in 1889, which is to commemorate the Revolution of 1789, and show to the world the progress that has taken place since that epoch. On the opening of the Chambers, which took place on January 12, M. Floquet was again elected Speaker. The Radical demands for an income-tax and the separation of church and state were not adopted in the ministerial programme. The great gains of the monarchical parties in the late elections drove the new Government to issue directions for the future repression of political activity among the episcopacy and the rural clergy, and for the removal of secret enemies of the republic from offices in the civil service. Lockroy and Granet had been taken into the Cabinet from Clémenceau's party, in order to prevent the one hundred Radicals from uniting with the Monarchists to overthrow the ministry. Sarrien was also a member of the Radical Left, and Gen. Boulanger was supposed to entertain close re-

lations with Clémenceau. Goblet sympathized with the Radicals in their hostility to the Opportunists, and in favoring the separation of church and state. Baïhaut, Sadi-Carnot, Demôle, and Develle, were Moderate Liberals, affiliated with the party of Gambetta and Ferry. On January 21 Rochefort's motion in favor of an amnesty of the broadest character was carried against the Government, with the help of the Right, by three votes. The Radicals subsequently repented of their bargain with the Reactionaries, and struck out from the bill the paragraphs that gained the support of the latter, extending the amnesty to persons condemned for offenses against the election laws and the participants in the last revolt in Algeria, in consequence of which the bill itself was defeated on February 6 by a vote of 347 to 116. On February 8 the Senate passed the clause in the new school law forbidding the employment of members of religious orders as teachers in the state schools. This much-debated measure, which must be carried into full effect before the end of five years, deprives ten thousand monks and nuns of employment. A motion in favor of exempting from military service the teachers in the clerical free schools, or private schools, as the law requires that they shall be designated, in the same manner as teachers in the state schools, was rejected on March 1. On February 8 Michelin's proposition for an investigation of the cause of the Tonquin complication, involving the impeachment of Ferry, was lost in the Chamber. M. de Freycinet parried this attack by showing that the expedition resulted from the action of the Broglie ministry, and that all subsequent Chambers had approved the acts of the Government. On February 11 the Extreme Left brought forward the labor question in connection with the Decazeville riots and the murder of Watrin. The Socialist Basly defended the murder from the tribune, and demanded that the Government should let the persons arrested go unpunished, and compel the company owning the mines to grant the demands of the laborers. As many as 188 deputies voted in favor of the resolution. On February 9 the Chamber voted to take up two bills that had been rejected by the committee, one for taxing foreign workmen, and the other excluding them from employment on public works. The Camélinat resolution, declaring the charter of the Decazeville company to have been forfeited by its having ceased operations in consequence of the strike, met with the approval of the Minister of Public Works, but he was unable to win over his colleagues to this view. The resolution was lost on March 13 by a vote of 266 to 39. After two days of discussion the Government and the Chamber agreed on an order of the day expressing confidence that the Government in legislation on the subject of mines would introduce ameliorations in which it would have regard to the protection of the interests of the laborers as well as of the rights of the state.

The Expulsion of the Princes.—The next difficulty, after the dangers of the amnesty resolution and the Tonquin *enquête* had been averted, was prepared for the Government by the Ferry group, who brought forward a bill for the banishment of all members of houses that had formerly reigned in France. The immediate occasion for the proposal was the expression of a royalist deputy, who uttered from the tribune the hope that France would soon be delivered from the republic. The marriages of Orleanist princesses with members of European reigning houses, the surprising results of the last elections, the increasing activity of the clerical partisans of the dynastic pretenders, the fact that the Count of Paris had recently set up a kind of court, and the rumor that a revolutionary government had already been organized in secret, and that whole bodies of troops had been won over by the Orleanists, all combined to awaken suspicion and disquiet among the Republicans. The Prime Minister opposed the proposition in the committee, declaring that the Government possessed the means to guard the state against conspiracies. The committee recommended, instead of Duché's proposal for the unconditional expatriation of the princes, that the Government be intrusted with discretionary power to expel them. The bill was lost on March 4 by the votes of 179 Monarchists and 151 Republicans against it, while 193 Republicans voted in its favor and in opposition to the Government. The ministry received after this result a reassuring vote of confidence in the form of a favorable order of the day voted by 347 Republicans.

The marriage at Lisbon of the daughter of the Count of Paris to the Crown-Prince of Portugal, which was made the occasion of a royalist demonstration, left no doubt that the present head of the Bourbons had assumed the part of a pretender. In the presence of the foreign ministers, who were invited to the ceremony, the connection of the royal house with France was indicated in various symbolical ways, such as the grouping of the bridal gifts according to provinces, and the hopes of a restoration were openly expressed. This festal demonstration convinced the ministers and the reluctant Republican senators of the expediency of ridding France of the dangerous presence of the Orleans pretender. The bill passed the Senate on June 22 by a vote of 141 to 107. The Count of Paris awaited the notice at his castle of Eu, where crowds of Orleanists, among whom were 150 deputies and senators, assembled to manifest their indignation and pay homage to the future King. He departed after the decree of expulsion, at first for Tunbridge Wells, in England, and subsequently went to Lisbon. The exile of the prince as a consequence of the royal marriage was an incongruous act from the fact that the French minister at Lisbon, who attended the feast, felicitated the King of Portugal on the family union. The marriage

of his daughter had been notified by the Count of Paris not only to the sovereigns of Europe, whom he addressed, according to the formula used by regnant princes, as his cousins, but also, after the old custom of French kings, to the dukes and peers of France.

The following manifesto was published by Philip, Count of Paris, on June 24, the day on which he left Château d'Eu:

Compelled to quit the soil of my native country, I protest in the name of right against the violence that is used toward me. Passionately attached to my country, whose misfortunes have rendered it still more dear to me, I have lived there until now without infringing the laws. In order to drag me from it the moment has been chosen when I had just returned to it rejoicing in having formed a new bond between France and a friendly nation.

In proscribing me, revenge is taken on the three and a half million votes which on the 4th of October condemned the faults of the republic, and it is sought to intimidate those who are daily detaching themselves from it. I am made the object of attack against the monarchical principle, the charge of which has been transmitted to me by those who had so nobly preserved it. It is sought to separate from France the head of the glorious family that has directed it during nine centuries in the work of national unity, which, associated with the people in good and bad fortune, has formed its greatness and its prosperity. It is hoped that the nation has forgotten the happy and pacific reign of my grandfather, Louis Philippe, and the more recent days when my brother and my uncle, after having fought under its flag, served in the ranks of its valiant army.

Those expectations will be deceived. Taught by experience, France will not be mistaken, either as to the cause or as to the authors of the evils under which she suffers. She will recognize that the monarchy, traditional in its principle and modern in its institutions, can alone supply a remedy for them.

It is only this traditional monarchy, of which I am the representative, that can reduce to impotence those men of disorder who menace the peace of the country, can insure political and religious liberty, revive authority, and restore the public fortunes. It only can give to our democratic society a strong government, one open to all, superior to parties, one whose stability will be for Europe a pledge of enduring peace.

My duty is to labor incessantly at this work of salvation. With the help of God and of all those who share my faith in the future I shall accomplish it. The republic is afraid. In striking at me, it gives me prominence. I have confidence in France. At the decisive hour, I shall be ready.

Prince Napoleon left the same day for Geneva, while his son and rival, after making a speech to ten thousand sympathizing Bonapartists, took the train for Brussels.

The Duc d'Aumale was not included in the act of expulsion, but, in accordance with a clause disqualifying princes of former dynasties for posts in the service of the republic, his commission in the army was canceled. He thereupon wrote a letter to President Grévy, denying that his powers extended to the army, and issued an appeal to the officers to support him in this contention. Gen. Boulanger, in answer to the argument that officers could only be cashiered by court-martial, said that the principle was a good one, but could not apply to Orleans princes who, under special laws in the reign of Louis Philippe, were

made colonels at seventeen, and generals of division before they were thirty. The Duc d'Aumale said that this sarcasm, which was uttered in the Senate, came with ill grace from an officer who had been indebted to him for his own advancement. The minister denied that he had been indebted to the prince, yet he could not disclaim his letters, which appeared in royalist newspapers, expressing gratitude for the Duc d'Aumale's patronage. In consequence of the angry letter of the irascible old prince, who contemptuously informed the President that he was still General Henri d'Orleans, he was himself expelled by special decree, on the ground that he refused to respect the laws of the republic. The Duc de Chartres took the same ground, but contented himself with an appeal to the Council of State. In October the Duc d'Aumale made a gift of his castle and estate at Chantilly to the French Institute, for the establishment of a museum, reserving to himself during life the usufruct of the property, reckoned at 500,000 francs per annum. The gift was accepted, and approved by the Council of State. The collections of works of art and the furniture were estimated by the official valuers to be worth 8,344,000 francs.

On June 11 the Chamber voted the law of expulsion as agreed upon between the Prime Minister and the deputy Brousse. Against the unconditional expulsion of all the princes, 136 Republicans voted with the Government, and with the 178 votes of the Right defeated the proposal, which was supported by 220 Radical votes. The compromise measure was carried by 310 against 233 votes. It provides—(1), for the expulsion of the pretenders and their next heirs; (2), for the expulsion of other princes by decree at the discretion of the Government; (3), for the punishment of the return to France of any of the exiled pretenders with imprisonment for from two to five years; (4), that the tolerated princes must abstain from all political action.

The republic has been represented in the principal Continental courts, hitherto, by diplomats of former régimes, members of the French nobility, who, though not active partisans of the dynastic pretenders, were not republicans. Several of these men resigned on account of the banishment of the princes, and the Freycinet ministry was compelled to undertake the difficult task of filling the posts at Vienna, Berlin, and other capitals, with the one at St. Petersburg, which had long been vacant, with men of republican antecedents and diplomatic capabilities, who would be acceptable to those monarchical governments.

General Boulanger.—The greatest political success of the year was achieved by the Minister of War, by his energy and activity, and with the support of the Radicals. The Radical three-year recruitment bill, which was designed to establish real universal military service, and do away with the volunteer sys-

tem of recruitment, he was able to shelve before it came up in the Senate, by withdrawing all the army bills under consideration, under the pretext of preparing a single bill for the reorganization of the army. This bill, though the principle was exceedingly popular, was distrusted by all the military authorities, who consider that it will lower the efficiency of the army. The service he labored to make more pleasant, as well as more efficient, and many of the causes of discontent in the ranks were removed by changes in the regulations. He gave the soldiers more comfortable beds in their barracks, abolished the rule requiring them to shave off their beards, relieved them of the duty of carrying knapsacks, did away with Sunday drills and parades, and gave them more holidays. He founded an officers' casino in Paris, and was able in many ways to improve the prestige of the army, and to render it more popular in the nation. The abuses of the contract system and the loose methods of the war office were corrected with vigor. All departments connected with the service were spurred to greater activity. Great masses of war material were collected. A repeating-rifle was adopted for the infantry, not long after Germany had decided on a model, and the line will be armed with the new weapon in two or three years. The great siego-guns, in which France was already superior to any other power, both as respects size and numbers, were added to, and their destructive power greatly increased by a new explosive, called *melinite*.

Many people were filled with mistrust when a Radical, like Boulanger, was given the control of the army. Yet the energy and practical sense that he showed, and the enthusiasm for the army that he awakened, soon gained the good-will of all Republicans except the Ferrists. His patriotic speeches, terse and vigorous in style, and his ubiquitous activity, made him the most popular personage that has arisen in French politics since Gambetta. Even the Monarchists regarded him with admiration and approval. The Germans considered him as the personification of the idea of revenge, though none of his patriotic expressions could be construed as hinting at the redemption of the lost provinces. A bloodless duel, in which he engaged with the senator Baron Lareinty, on July 16, added to the renown of the popular War Minister. Lareinty shouted out, when Boulanger characterized the Due d'Aumale's letter to M. Grévy as impudent, that it was cowardly thus to insult an absent person. Boulanger challenged him for that expression, and received his fire while his own pistol failed to discharge. The principals then parted with compliments.

Legislation.—A law was passed allowing free-thinkers fuller rights of civil burial. The Chamber agreed to make the question of the separation of church and state an order of the

day. A bill was passed allowing the sittings of the Municipal Council of Paris to be held in public, and one for a large loan to be issued by the city. The proposed tax on imported grain for the protection of farmers was abandoned. The navigation treaty with Italy expired on July 16, 1886, the Chamber having refused to ratify a new treaty.

The question of a national loan was the most important one of the session. The Finance Minister's proposal of a loan of 1,500,000,000 francs for the conversion of the floating debt met with so much opposition that he had to modify the project. His new proposition to issue bonds for only 900,000,000 francs was assented to by the budget commission before the adjournment of the regular session; but in the extraordinary session, which began on November 10, the Right and the Radicals united to attack the Government for not keeping their promise on assuming office to balance the budget by retrenchment, and finally forced the ministry to retire.

Reconstitution of the Cabinet.—The autumn session of the Assembly was mostly taken up with the discussion of the budget, over which no agreement was possible between the Chamber and the Minister of Finance. The majority objected to the conversion of the short-term bonds and the funding of the floating debt by means of a new loan. They would not listen to Sadi-Carnot's plan to abolish the extraordinary budget, and defray the cost of such public works as were regarded necessary by suspending the sinking-fund. They rejected the new taxes proposed by him, such as an increase in the spirit duty of one third, a higher duty on inheritances, etc., except a duty of five francs per centner on grain and the increase of the thirty-franc excise duty on alcohol to forty francs, while the income-tax proposed by the budget committee was not approved by the ministry, who said that it would require a year to study the best form of income-tax. The Chamber made no objection to voting 400,000,000 francs to provide the army with magazine rifles and armor-plated fortresses, nor to the demand of the Minister of Marine who asked for 200,000,000 francs for torpedo-vessels and light cruisers; yet it insisted on the establishment of an equilibrium in the budget. The only possible way to secure a balanced budget was by economies. The critics of the Government suggested the abolition of useless offices. A few of the subordinate places in the ministries the Government agreed to do away with. A motion to abolish under-secretaryships was lost by a small majority. A Radical, M. Colfavru, offered an amendment to the budget for the suppression of sub-prefectures. The sub-prefects, 360 in number, are the representatives of the central Government in the arrondissements. Raoul Duval, who was elected as a Conservative, but has given in his adhesion to the republic, and is endeavoring to lead the more liberal sections of the

Orleanists and Bonapartists into a union with the Opportunists, in order to combat the Radical tendencies of French polities, supported the proposition. It was carried on December 3, by a vote of 262 to 249. The majority was composed of 173 Reactionaries, 67 members of the Extreme Left, headed by M. Clémenceau, 16 of the Radical Left, and 6 other Republicans, while 46 Republicans did not vote. The same evening the ministers tendered their resignations to M. Grévy. The Left wished to force the Government to abolish sub-prefects by giving a smaller majority than in favor of retaining the sub-ministries, which was 24, but had no desire to overturn the Cabinet.

President Grévy requested M. Floquet, the Speaker of the Chamber, to form a cabinet; but he could not be induced to sacrifice his political chances as M. Brisson had done the year before. On the 8th of December, after first declining, M. Goblet accepted the task. The new cabinet was gazetted on December 12. The Prime Minister took the portfolio of the Interior, and provisionally that of Foreign Affairs, which was first offered to Baron de Courcel, but declined by him and then by M. Billot; the Ministry of Finance was given to M. Dauphin, who was a judge at Amiens; M. Berthelot, an eminent professor of chemistry, was made Minister of Public Instruction; M. Sarrien became Minister of Justice, instead of Minister of Internal Affairs; Gen. Boulanger and Admiral Aube remained at the head of the ministries of War and Marine; M. Granet retained the portfolio of Posts and Telegraphs; M. Lockroy, that of Commerce; and M. Develin remained Minister of Agriculture; M. Millard was appointed Minister of Public Works. After several diplomats had declined to take the portfolio of Foreign Affairs, it was given to M. Flourens, Vice-President of the Council of State. As the budget could not be completed before the end of the session, the Chamber voted two months' expenditure on account.

The Councils-General.—The Monarchs hoped to find in the councils-general of the departments a basis of operations for their campaign against the republic, but were disappointed. Of these bodies, which were opened all over France on August 16, there were seventy-two with Republican, and only eleven with Conservative majorities. Jules Ferry, in the Council-General of the Vosges department, delivered a speech in which he appealed to the enemies of the republic to abandon their chimerical hopes, and take an active and earnest part in the politics of the country, forming a genuine Conservative party, which is necessary for the well-being of a rightly constituted republic. The Radicals treated this declaration as treason against republican principles, the Bonapartists characterized it as an impudent proposition, but the Orleanist journals promised Ferry and his party a truce if they would follow moderate counsels in ecclesiastical and economical matters, and bring about the return of the

princes. The Orleanists and Bonapartists carried on a vigorous electoral agitation, and hoped to show in the August elections for the departmental councils a general reaction against the republic in consequence of the expulsion of the princes. They revealed the weakness of their parties in only gaining by their extraordinary efforts seven seats. The connection between the councils and national politics is frequently denied, yet the elections are generally regarded as an indicator of the political sentiment of the nation. In case of a revolution these bodies possess, by virtue of the law of Feb. 15, 1872, the power to control to a large extent the fate of the nation. For this reason the revolutionary parties exert themselves to obtain as large a representation as they can in the councils. If at any time the legislative Chambers are illegally dissolved, or prevented from meeting, two delegates are to be chosen by the council of each department, who shall constitute a provisional assembly to take measures to restore order and enable the Chambers to resume their sessions, or after the lapse of a month to have a Chamber elected by universal suffrage.

The election of the elementary school boards under the new law took place in the councils-general in the middle of November. Of the eighty-two departments only seven chose Clericals, while one elected two Republicans and two Conservatives.

The Affair at Châteauvillain.—At Châteauvillain, a small town in the Isère, a chapel, connected with a factory, was ordered by the sub-prefect to be closed. Public service had been held in the chapel for forty years, but without authorization, which is contrary to the Concordat. The curé of the town, who had been dismissed for an electoral misdemeanor, was made minister of the chapel, and conducted an active agitation against the republic and the Republicans of the district. The sub-prefect, when his orders were not obeyed, proceeded to close the chapel by force, but neglected to apply to the manager for permission to enter the premises, a preliminary formality which the law prescribes. The manager of the factory collected his work-people in the chapel, and when the police appeared they were received with insults and pelted with all kinds of missiles, while Fischer, the manager, fired two shots from a revolver at them. The police returned the fire, wounding Fischer and killing a woman. This affair was the subject of interpellations in the Chamber, and of angry attacks upon the Government by Count de Mun and other Clerical representatives.

Strike at Decazeville.—A strike, which lasted through the first half of 1886, occurred at a mining village in Aveyron, that was founded by the father of the late Duc Decazes in 1830. Some time after the original company failed, other capitalists resumed operations, but of late years the mines and iron-works have not been profitable, and the wages of the workmen were pressed down below living rates. The

engineer in charge, named Watrin, had for a year or two past rendered himself obnoxious to the miners. The strike began on Jan. 26, when the mining inspector of the department was visiting the mines. The same day a crowd of workmen, led by a former employé, named Bedel, went to Watrin's office, and demanded that he should go with them to the mayor's office and receive the notification of their conditions. Surrounded by four hundred of the laborers, who shouted threats and abuse, and pelted him with mud, he went before the mayor. They demanded that Watrin should resign, and that the wages should be five francs for eight hours' work, and should be paid every two weeks. Some of the mines, they complained, were dangerous. While Watrin was conducting the inspecting engineer to the works, a crowd of over one thousand persons gathered threateningly about him, and the party took refuge in a building, whither the mayor and sub-prefect came to their assistance. But the rioters broke in, dragged Watrin away from his defenders, and threw him out into the street, where he was trampled to death. The directors of the company, among whom was Léon Say, said that they would never accede to the men's demands, and appealed to the Government to guard their property, while the political advocates of the rights of labor warmly espoused the cause of the striking miners. The deputies, Basly and Camélinat, went to Decazeville about the 1st of March, as well as the editors of Radical Parisian sheets, and encouraged the strikers to stand firm. The mine-owners declared that, rather than yield, they would close their works, which would throw three thousand men out of employment. When the strikers were reduced to the last extremity the Municipal Council of Paris voted ten thousand francs, and this example was followed by other cities. Three laborers, who were arrested for intimidation, were condemned on March 8, one to three months' and the others to two weeks' imprisonment. After months of inaction the Government posted troops in the threatened district. The journalists, Roche and Duc-Quercy, were placed under arrest. In May the laborers proposed arbitration, but the Aveyron company rejected the proposition. At length, on June 10, a compromise proposed by the company, though far from meeting the desires of the strikers, was accepted upon the advice of Basly, because the men had not the means to hold out longer. The ringleaders in the murder of Watrin were condemned at Rodez on June 20, Bedel to eight years, and three others to long terms of imprisonment, while six other prisoners were acquitted. Roche and Duc-Quercy were condemned to prison for fifteen months on the charge of inciting disorder in the district. His conviction gained Roche the nomination for the vacancy in the House of Deputies, caused by the resignation of Rochefort. He received 100,000 votes, and Gaulois, a fol-

lower of Clémenceau, 145,000, while the Moderates set up no candidate, and the majority of the electors of Paris abstained from voting.

Labor Disturbances in Paris.—In August the waiters, cooks, and butchers' assistants in Paris carried on a series of demonstrations against the intelligence bureaus, which exacted high fees for procuring places, and often kept them long waiting for employment, without informing them that there was no request for their labor. There were a number of struggles with the police, and the prominent socialistic agitators delivered violent speeches. The coffee-house waiters set up intelligence bureaus of their own. Louise Michel, Dr. Susini, Guesde, and Paul Lafarge were arraigned for seditious speeches in Montmartre. The three latter were absent, and were condemned *in contumaciam*.

Strike of Laborers in Vierzon.—In the early part of October serious labor disturbances occurred in Vierzon. A strike took place in some of the factories, and when a part of the laborers returned to work they were molested by those who continued on strike. The gendarmerie dispersed the disturbers, and arrested among others the Socialist Baudin, a member of the Council-General of the department, who was the leader of the strikers. The Government sent troops to preserve order and to protect the men that wished to work. When the workmen were returning from work on Oct. 5, they were jeered by the strikers, and men and women from other factories, to the number of 4,000. The gendarmes, who interfered, were attacked, and the mob was not subdued until a squadron of dragoons charged upon them and wounded many. The Government was assailed in the Chamber in strong language for its attitude toward the strikers, and, when Minister Sarrien demanded a resolution of approval, it was refused by the combined votes of Radicals and Monarchists. Thereupon he and Demôle, Baihaut, and Develle, sent in their resignations, and were joined afterward by Sadi-Carnot and Lockroy. The Cabinet crisis was ended on Oct. 19 by a declaration of the Radicals, who said that the situation arose out of a misunderstanding. Consequently the ministers retained their portfolios.

The Trade-Union Congress.—In the international congress of delegates from trade unions, the principal question debated was international legislation for the protection of laborers. The Swiss Government has at different times made overtures to other governments for uniform laws on labor questions. The Congress adopted on the subject the following resolution:

The Congress decides that the workmen of the different countries represented will urge their respective governments to open negotiations for the purpose of concluding international conventions and treaties concerning the conditions of labor. The Congress urges that the following demands should be the first taken into discussion: (1), interdiction of work by children under fourteen years of age; (2), special measures for

the protection of children above fourteen years, and of women; (3), the duration of the day's work to be fixed at eight hours, with one day's rest per week; (4), suppression of night-work, excepting under certain circumstances to be specified; (5), obligatory adoption of measures of hygiene in workshops, mines, factories, etc.; (6), suppression of certain branches of industry and certain modes of manufacturing injurious to the health of the workers; (7), civil and penal responsibility of employers with respect to accidents; (8), inspection of workshops, manufactories, mines, etc., by inspectors elected by the workmen themselves.

The English delegates were unwilling to commit themselves entirely to the principle of state interference, or to that of international combination, and abstained from voting, alleging that they had received no mandate from their constituents to vote for the propositions submitted. Dr. de Pape, a Belgian Socialist, who presided over the meeting, recalled the fact that, in the Congress of 1883, the English had likewise withheld their support from resolutions having the same object as these, that of strengthening the hands of the Government of the Swiss Republic in its efforts to obtain international concert in legislation for the benefit of the working-class. He asked why the workmen of England, who, under the influence of trade-unionism, had set the world a glorious example, and who through state intervention had secured a day's rest every week and protection for women and children, should not agree to extend to the Continent principles that they had nobly struggled to enforce at home.

Colonies.—The colonies and protected countries under the dominion of France have an aggregate area of 491,000 square miles, not including Algeria, nor the Pacific islands and regions in Africa added to the French domains in 1885 and 1886. In Asia the colonies of Cochin-China and Tonquin have an area of 57,000 square miles and 10,689,000 inhabitants, while the protectorates of Annam and Cambodia have a combined area of 59,000 square miles and a population of 7,020,000 souls. In Africa the colony of Senegambia was extended in 1883 as far as Bamako, on the Niger. The area is estimated at 96,000 square miles. The sum of 11,332,797 francs was voted for a railroad in Senegambia in 1884, and 7,352,603 for general expenses in 1885. The colony of Gaboon and the occupied points on the Gold Coast have also been increased by recent annexations. The extensive new possessions on the Ogowé and the middle Congo were united in 1886 to the colony of Gaboon, and Savorgnan de Brazza was appointed commissary-general, or governor, with the power of appointing all civil officers, excepting the French resident. His immediate subordinate is the explorer Ballay. He asserts that the region acquired by his efforts for France possesses valuable natural resources, and that the colony contains 20,000,000 inhabitants. He promises to preserve order with a force of 7,000 natives, drilled by 80 French officers. The

Chamber voted 1,190,000 francs for the first year's expenses. The southern boundary was defined in a decree of the President as extending from Njole across the Ogowé to Kakamucka, or Baudoinville, and thence along the frontiers of the Portuguese possessions and the Congo State.

In June, 1886, the French Government announced that the Comoro islands, which lie at the northern entrance of the Strait of Mozambique, between the African Continent and Madagascar, had been taken under its protection.

In America the colony of Guiana, or Cayenne, is about 47,000 square miles in area, with a population of 20,284; Guadeloupe and its dependencies, 730 square miles in extent, with 182,866 inhabitants; Martinique, 380 square miles in area, with 167,119 inhabitants; and St. Pierre and Miquelon, 92 square miles in area, with 5,564 inhabitants.

In Oceania the undisputed possessions of France comprise New Caledonia and its dependencies, having an area of nearly 47,000 square miles, with 60,703 inhabitants; and the small islands of Tahiti and Moorea, Tubuai, and Raivavaei, the Marquesas group, and Tuamotu, Gambier, and the Rapa islands, containing altogether 25,580 inhabitants.

FRIENDS.—The five "Eastern" yearly meetings of Friends in America return 16,165 members, divided as follow: New England yearly meeting, 4,370; New York, 3,809; Baltimore, 815; North Carolina, 5,761. The society has enjoyed a large growth during the past twenty years in the West, where the Indiana yearly meeting, with 27,800 members, has been the parent of five yearly meetings, with which are connected 58 quarterly meetings and 53,810 members. The whole number of Friends in the Eastern and Western yearly meetings, without including the Philadelphia yearly meeting, is 69,476. It has been customary for several years in the New York yearly meeting for the men and women to hold joint sessions for the transaction of certain business, and then separating and holding their formal meetings as the "yearly meeting," composed of men, and the "Women's yearly meeting." In 1886 it was determined that since in religious matters "all are one in Christ," the holding of the joint meeting should prevail, and the separate meetings discontinued. In the New England yearly meeting, joint sessions were held, but the formal organization of separate meetings was kept up. In the Ohio yearly meeting the question of tolerating outward observance of the Christian ordinances, which has received attention for several years past, was again brought up and considered. The action of the meeting recited that "a minute of the meeting of ministers and elders, reaffirming our faith in the one saving baptism of the Holy Ghost and the spiritual partaking of the flesh and blood of Christ was brought before us, during the reading of which the melting power of the Holy Ghost rested upon the meeting,

setting his own seal upon the precious truth ; and the proposition to accept the declaration was adopted." A proposal made to add to the minute words to the effect that the outward form of baptism and the supper are not part of the gospel, and should neither be taught nor practiced by a member, was rejected. Organizations of meetings, composed chiefly of colored members, have been made in Arkansas. At the Friends' College, near Helena, 300 colored persons have been trained as teachers.

A committee of the London yearly meeting has had under consideration the question whether regular correspondence should be maintained with several bodies of American Friends, constituting yearly meetings which have withdrawn from the larger bodies. The number of Friends composing these bodies is variously estimated. The committee resolved to recommend the yearly meeting to continue its epistolary correspondence with all yearly meetings now recognized, and to send a letter expressing Christian interest to the other bodies. The separatist bodies concerned in the decision of this question are other than the body that originated with the Friends who participated with Elias Hicks in separating from the main body at about the beginning of the century.

Friends in England.—The London yearly meeting met May 17. The statistical report showed that for several years up to 1866, the numbers of the society in Great Britain had rapidly decreased till they had fallen below 14,000. Since that time, to the present year, the numbers had gradually increased; but for this year the report, while it still showed an increase of one member in Ireland, disclosed a decrease of one in England. The present number of members was 15,380 in England, and about £500 in Ireland; 317 regular meetings of the

body were held in Great Britain. In addition to regular members, there were 5,712 adherents not yet in membership, or 83 more than in the previous year. The increase in this class had been most apparent in the southern counties and in Scotland.

It was suggested in reference to the reported changes of views of Friends in America on the subjects of baptism and the Lord's Supper, that the great numbers of persons who had recently joined the society had influenced the body to lower some of its testimonies; but Mr. Robert W. Douglas, of Indiana, assured the yearly meeting that this was not the case. The changes had taken place among Quakers of the old stock. None among those who had recently joined the society had raised these questions. The thirteen yearly meetings of America, having 65,000 members, were as sound as the London yearly meeting, and had recently reaffirmed their old doctrines on the points in question.

At a "morning meeting" of members of the society, held in London in October, a proposition by Mr. Arthur Morris, to labor in religious work in Denmark, Norway, Sweden, and parts of Germany, was considered and approved.

Twenty-four members of the society from England were reported as engaged in missionary work in India and Madagascar. In Madagascar, the Friends had 133 native teachers and 104 congregations; 386 children in schools at the capital, and 14,000 in the country. Between 400,000 and 500,000 copies of publications, including both tracts and works of 300 pages, in the native language, had been printed by Friends; £8,000 had been expended during the year for missions. A new Friends' Mission Institute was opened in connection with Ratcliffe Meeting-House, London, in November.

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GAME LAWS. In the United States, wild creatures, whether fish, flesh, or fowl, are "game" for any one that can kill or capture them without trespassing upon private property, and without violating State or local laws for their protection. When society began to organize, after the settlement of the country, there were some attempts to transplant English restrictions, but nearly every vestige of these vanished when independence was secured, and until within a comparatively short time little has been done to preserve game from extermination. Any attempt to protect private lands was looked upon with disfavor, and was very apt to provoke popular hostility. The choicer kinds of game were exterminated in the more thickly settled parts of the country prior to the Revolution, and it is only within a generation that systematic efforts have been made to protect the many against the few, and at least secure for choice game immunity from slaughter during their

breeding-season. The great extent of the country causes wide diversity in the habits of animals and birds, even among those of the same species, and within the confines of a single State it is often necessary to establish different laws for the various countries. In the following summary both State and county laws are given where practicable, the latter being the more important to observe. In nearly all the States insectivorous and song birds are protected by law at all times, and everywhere unsportsmanlike devices for wholesale slaughter are prohibited. It is assumed that, for the most part, persons who refer to this paper will not care to know when they may lawfully kill robins, mocking-birds, and the like, therefore the laws specifying the open season for them and their kindred are omitted. Game laws are still practically ignored in many parts of the country, especially where the population is scattered; but reasonableness is beginning to

make its influence felt, and even the lawlessly inclined feel a sense of shame when caught killing game out of season. It is not safe to assume anywhere that the laws may be transgressed with impunity; the members of many sporting clubs are pledged to prosecute infractions of local laws, and some clubs keep special officers on the lookout for offenders. In the following alphabetical list of States the open seasons for all kinds of game are generally given so far as provided for by existing laws. Where any special species of game is not mentioned, it may be assumed that it is not protected by law in that special locality. No true sportsman, however, will take advantage of this omission to kill game out of season. In most of the States, too, there is a discrimination against non-residents:

Alabama.—Open season: Deer, October 20 to February 14. In Greene and Pickens Counties, September 15 to February 1; in Lamar County, October 1 to April 1; in Lawrence County, September 1 to April 1. Wild turkeys, October 20 to May 1; in Perry County, October 20 to February 14; in Greene and Pickens Counties, September 15 to April 15; in Lamon County, October 1 to April 1; in Lamar County, October 1 to May 1. Doves, August 1 to April 1; in Perry County, August 1 to March 1; in Greene and Pickens Counties, August 1 to April 1; in Barbour County, August 1 to May 1. Quail, September 15 to March 15; in Perry County, October 15 to March 1; in Greene and Pickens Counties, October 15 to March 15; in Barbour County, September 15 to May 1; in Lawrence County, September 1 to April 1. Wild duck, October 1 to May 1; in Greene and Pickens Counties, October 1 to April 1. Rabbits are protected in Lawrence County alone; open season, September 1 to April 1.

Arkansas.—Open season: Doe and fawn, September 1 to February 1. Wild turkey, September 1 to May 1. Wild duck, September 1 to February 1. Pinnailed grouse, September 1 to February 1. Quail, October 1 to March 1.

California.—Antelope, no open season. Deer (male), open season, July 1 to November 1. No open season for female deer and spotted fawn. In Siskiyou and Nevada Counties deer may be killed from August 1 to February 1. Doves, June 1 to January 1. Mountain-sheep, no open season. Elk, no open season. (In Siskiyou and Nevada Counties elk may be killed from August 1 to February 1.) Quail, partridge, grouse, and rail, October 1 to May 1. (In Siskiyou County, grouse, sage-hen, and prairie-chicken, August 1 to April 1; quail, October 1 to March 15.) Wild duck are not protected by State laws, but in Siskiyou County their open season is September 15 to April 15; in Plumas, Lassen, and Sierra Counties, August 15 to March 15; in San Bernardino and Los Angeles Counties, quail, grouse, and all broad-billed ducks are open, August 1 to April 1. In San Mateo County, bounding deer is prohibited. In Napa, Yolo, San Francisco, and Butte Counties, hunting on enclosed lands without permission of owner is prohibited. The open season for speckled trout, brook- or salmon-trout is April 1 to November 1. Salmon, September 1 to July 31. (They may not be taken with nets between sunrise on Saturday and noon on Sunday.) In Siskiyou County trout may be taken with hook and line at all seasons, and local laws in nearly all the counties prohibit the taking of trout except by hook and line at all seasons. This prohibition exists at Lakes Merritt and Piralta, where also hunting is forbidden within one hundred yards of the lake-shore. Shad, open season, December 31 to April 1.

Colorado.—Open season for antelope, buffalo, deer,

and elk, October 15 to January 1. Mountain-sheep are protected till April 7, 1895. Partridge, pheasant, prairie-chicken, grouse, open season, October 1 to November 15. Trout and other food-fish, July 1 to November 1.

Connecticut.—Open season: Woodcock, quail, partridge (grouse), gray squirrel, October 1 to January 1. Wild duck, geese, brant, September 1 to May 1. Meadow-lark, September 1 to February 1. Rail, September 12 to January 1. (In New Haven, Fairfield, and Litchfield Counties, August 20 to January 1.) Trout, July 1 to April 1. Sunday hunting, except on one's own land, sailing for wild-fowl, and unsportsman-like practices generally, are prohibited. So also is the killing of wild-fowl on certain sections of the Housatonic river. Many ponds and lakes are protected against unauthorized fishermen. Private grounds are by law considered "posted" if six different signs are maintained in six different conspicuous places on the premises. Penalty, \$7 to \$25, besides recoverable damage by trespass.

Dakota.—Open season, for antelope, buffalo, deer, elk, mountain-sheep, September 1 to January 1. Curlew, grouse, prairie-chicken, plover, snipe, August 15 to January 1. Quail protected till August 15, 1888. In Clay, Union, and Lincoln Counties the open season for deer is October 1 to January 1. In Clay, Union, and Yankton Counties quail are open from August 15 to January 1. Fishing otherwise than with hook and line, except in Missouri and Red rivers, and at any inlet or outlet of a lake, is prohibited.

Delaware.—Non-residents may not kill game without license from the Delaware Game Protective Association, and such persons trespassing on private property with either dog or gun may be fined \$20 or imprisoned from ten to twenty days. Open season for pheasants, quail, woodcock, hare, and rabbit, November 15 to February 15. (In Kent, Sussex, and New Castle Counties, November 15 to January 15.) Orlolan, rail, reed-bird, September 1 to January 1.

District of Columbia.—Open season: Deer, August 15 to January 15; wild duck, geese, brant, September 1 to April 1; partridge or quail, November 1 to February 1; pheasant, August 1 to February 1; woodcock, July 1 to February 1; prairie-chicken, September 1 to February 1; snipe and plover, September 1 to May 1; ortolan, rail, reed-bird, ricebird, September 1 to February 1; shad and herring, January 1 to June 1. Posting private lands calls for at least two signs for each tract of fifty acres. Penalty for trespassing, \$10 to \$100. Fishing in the Potomac river, otherwise than with rod and line, is prohibited between May 30 and January 1, and during the rest of the year there is a close season for nets, etc., from sunset on Saturday till midnight on Sunday. Shooting at night and on Sunday is prohibited.

Florida.—Open season: Deer, wild turkey, quail, and partridge, September 1 to April 1. Non-residents must obtain a license from the clerk of the county. Price, \$25. Six names may be included in one license, and other names added at \$5 each. Seabirds and birds of plumage are protected at all times. Land is lawfully "posted" when notices are maintained in three conspicuous places around the premises.

Georgia.—Deer, general open season in nineteen counties, October 1 to April 1. There are local limitations as follows: Muskogee, Lincoln, and Baldwin Counties, open season, for doe and fawn, July 1 to January 1; for male deer, November 1 to March 1, and from May 1 to September 1. In Bryan County, August 1 to March 1; in Cobb and Greene Counties, October 15 to March 15; in Lowndes, Thomas, Washington, and Putnam Counties, October 1 to March 1. Partridge, wild turkey, wild duck are open from October 1 to April 1 in Chatham, Clark, Fulton, Camden, Bartow, Putnam, Floyd, Whitfield, Liberty, McCosh, and Bibb Counties. In Muskogee, Lincoln, and Baldwin Counties, wild turkey and partridge are

open, October 15 to March 15. In Richmond, Dougherty, Randolph, Calhoun, and Baker Counties, partridge are open, October 1 to April 1. In Bryan County, wild turkey are open, August 1 to March 1. In Morgan County, wild turkey, woodcock, partridge, and quail are open, October 1 to March 15. In Lowndes, Thomas, Washington, and Putnam Counties, wild turkey and partridge, October 15 to March 1. In Houston County, partridge, snipe, wild turkey, October 1 to March 1. In Bibb and Jones Counties, wild turkey, partridge, and wild duck, October 1 to April 1. In Rabun and Wilkes Counties, wild turkey, September 1 to May 1; in Wilkes County this is also the open season for partridges. In Bibb, Chatham, Murray, Effingham, and Camden Counties, hunting without permission of owner, even on uninclosed lands, is prohibited. In Douglas, Harrison, and Macon Counties, camp-hunting with dogs is prohibited.

Idaho.—Antelope, buffalo, elk, and mountain-sheep, open season, September 1 to January 1; prairie-chicken, sage-hen, grouse, and pheasant, July 15 to February 1; wild duck and geese, August 1 to April 15; quail and partridge are protected till September 1, 1887. In Ada County a local ordinance fixes September 1 to March 1 as the open season for grouse, prairie-chicken, and wild duck. Taking fish, except with hook and line, is prohibited.

Illinois.—Open season, for deer and wild turkey, September 1 to January 15; pinnated grouse, August 15 to December 1; ruffed grouse and quail, October 1 to January 1; woodcock, July 4 to January 1. Game-fish may be taken, with hook and line only from February 15 to June 15. Night shooting of wild fowl is prohibited. No person who has not resided sixty days in the State may kill wild game.

Indiana.—Open season: Deer, October 1 to January 1; quail or pheasant, October 15 to December 20; wild turkey, November 1 to February 1; woodcock, July 1 to January 1; wild duck, September 1 to April 15. Fish, with *gig* or spear, January 1 to March 1. Shooting wild pigeons prohibited within half a mile of any "pigeon-roost" or nesting-place. Trespass on inclosed lands punishable by fine.

Iowa.—Open season: Deer and elk, September 1 to January 1; ruffed grouse, quail, and wild turkey, October 1 to January 1; wild duck, August 15 to May 1; woodcock, July 10 to January 1; beaver, mink, otter, musk-rat, November 1 to April 1. No one person may, in one day, kill more than twenty-five each of quail, woodcock, prairie-chickens, and pheasant. Bass and wall-eyed pike are open, June 1 to April 1; salmon and trout, February 1 to November 1. No fish but minnows may be caught from July 1 to October 1.

Kansas.—Open season: Pinnated grouse, September 1 to January 1; quail, November 1 to January 1.

Kentucky.—Open season: Female deer, September 1 to March 1; quail, partridge, pheasant, October 1 to March 1; wild duck and geese, September 15 to May 1; woodcock, June 1 to January 1. Local laws in the 15th, 18th, 22d, 23d, 25th, 26th, 27th, and 31st congressional districts (except Boone, Jefferson, Kenton, Owen, Casey, Estill, and Lee Counties), fix the open seasons as follow: Deer, September 1 to March 1; squirrel, January 15 to February 1 (this does not apply to counties within the 15th congressional district nor to Lincoln County); hares and rabbits, October 20 to February 1 (not applicable to the 15th congressional district); wild geese and ducks, September 1 to May 1; wild turkey, September 1 to February 1; quail, partridge, pheasant, October 20 to February 1; dove, August 1 to February 1. In Christian, Campbell, and Kenton Counties, the open season is November 1 to March 1, and for the same birds with woodcock added the open season is October 1 to December 24 in Woodford County. Private grounds are "posted" when sign-boards are maintained in at least two conspicuous places on each side of the premises. Penalty for trespass not to exceed \$25, besides damages.

Louisiana.—Open season: Deer, October 1 to March

1; wild turkey, October 1 to April 15; quail, partridge, pheasant, October 1 to April 1.

Maine.—Open season for caribou, deer, moose, October 1 to January 1; quail and pinnated grouse, September 1 to January 1; plover, August 1 to May 1; ruffed grouse and partridge, September 1 to December 1; wild duck, September 1 to May 1; mink, beaver, sable, otter, fisher, musk-rat, October 15 to May 1; salmon, April 1 to July 15; also with hook and line, July 15 to September 15; smelts, except by hook and line, October 1 to April 1; landlocked salmon, trout, togue, May 1 to October 1 (these may also be taken for household use by residents of the State in February, March, and April); black bass, Oswego bass, and white perch, July 1 to April 1. For the Rangeley system of lakes and water-courses in Round Brook, Deep Brook, Misery, Saccatien, and Socatian rivers, special laws exist which should be consulted. As a rule, the first week in September closes the fishing-season. In Pickerel, Holland, Sand, Wilson's, Allen's, Taylor's, Canaan, and Garland village ponds, all fishing is prohibited for a term of years. Private fishing-grounds may be "posted" by placing signs at half-mile intervals on running streams, and at mile intervals on ponds or lakes.

Maryland.—State law fixes the open season, for quail or partridge, from November 1 to December 24; woodcock, June 15 to February 1; ruffed grouse, August 15 to January 1; rabbits, October 15 to January 15. The county laws are so diverse no summary can be here attempted. In Caroline and Queen Anne Counties license to shoot must be procured by non-residents, and trespass is punishable under State and county laws.

Massachusetts.—Open season, for deer, Tuesdays, Wednesdays, Thursdays, and Fridays in November. In Plymouth and Barnstable Counties there is at present no open season. Woodcock and partridge, September 1 to January 1; quail, October 15 to January 1; wild duck, September 1 to April 1; doves, gulls, tern, and sea-swallow, August 1 to May 1; plover, snipe, sandpiper, rail, and all marsh, beach, or shore birds, except as specified below, July 15 to April 1 (chicken plover, black-breasted plover, red-breasted sandpiper, winter yellow-leg, and Wilson's snipe, are not protected at all); gray squirrel, hare, rabbit, September 1 to March 1; salmon, May 1 to August 1; trout, April 1 to October 1; smelts, June 1 to March 15; landlocked salmon, lake-trout, April 1 to September 1; black bass, July 1 to December 1. Local laws are in force regarding the Merrimac and Connecticut rivers, and Davol's, Richmond, and City of Worcester ponds, Cochituate Lake, Avery Brook, and Easthead. Lands are "posted" by placing notices conspicuously, warning off trespassers, penalty not to exceed \$20.

Michigan.—Open season: Deer (Upper Peninsula), August 15 to November 15 (Lower Peninsula), October 1 to December 1; wild turkeys, October 1 to December 1; woodcock, August 1 to January 1; ruffed grouse and wild ducks, September 1 to January 1; snipe, September 1 to May 1; quail, November 1 to January 1; pinnated grouse, September 1 to November 1. Elk are protected until May, 1889. The open season for trout is May 1 to September 1, and for grayling, June 1 to November 1. No fish may be taken from Reed, Fisk, Diamond, or Stone Lakes, or from any lake in Westervelt township, from November 1 to May 1. Fish are also protected in inland lakes of Oceana County from January 1 to April 1, and in the lakes of Kalamazoo County, from March 1 to July 1, and in Devil's, Round, Whitman, and Bruce Lakes, from December 1 to April 1. Killing deer in the water, using swivel or punt guns, and shooting wild pigeons within five miles of nestings, are forbidden. Trespass on inclosed lands is punishable.

Minnesota.—Open season: Elk and deer, December 1 to December 15; woodcock, July 4 to November 4; prairie-chicken, white-breasted or sharp-tailed grouse, August 15 to October 1; ruffed grouse, October 1 to

January 1; aquatic fowls, September 1 to May 15; speckled trout, April 1 to October 1. In Stearns County the open season for deer is November 15 to December 15. Fish may be taken in Stevens County by hook and line only, and in Lake Ripley only from March 1 to June 1; in Loon, Crystal, Lily, Madison, and Miles Lakes, only from March 15 to June 1. Game-birds may be killed only by shooting, and most of the game-fishes are protected against unsportsman-like methods. Trespass on inclosed land or standing grain is punishable.

Mississippi.—Open season, for deer, September 15 to February 1; wild turkey, ruffed grouse, quail, October 1 to April 1; doves and starlings, September 15 to February 1. In Tate County the open season for all game is November 1 to March 1. In Jasper County wild turkeys are unprotected.

Missouri.—Open season: Deer, September 1 to January 15; wild turkey, September 15 to March 1; quail and grouse, pinnated and ruffed, October 15 to February 1; woodcock, July 1 to January 1; doves, meadow-lark, plover, August 1 to February 1. Trespass on inclosed land punishable.

Montana.—Open season for buffalo, moose, elk, black or white-tailed deer, mountain-sheep, and Rocky Mountain goat, August 10 to February 1; grouse, prairie-chicken, pheasant, partridge, quail, August 1 to March 1; wild geese and ducks, August 10 to May 15; quail turned loose for propagation, protected till March 12, 1891. Hounding deer, elk, moose, or mountain-sheep is forbidden.

Nebraska.—Open season: Buffalo, elk, deer, antelope, mountain-sheep, turkey, and quail, October 1 to January 1; grouse, September 1 to January 1; mink and musk-rats, February 15 to April 15; pinnated grouse, September 1 to January 1. Hounding deer is forbidden in Burt, Washington, Douglas, Sarpy, Cass, Saunders, and Dodge Counties. Trespass on private land, for the purpose of hunting, or catching fish in any private pond not more than ten acres in area, is punishable.

Nevada.—Open season, for deer, antelope, elk, mountain-sheep, and goat, August 1 to September 1; partridge, pheasant, woodcock, quail, wild geese, ducks, sand-hill crane, brant, swan, plover, curlew, snipe, grouse, robin, meadow-lark, yellow-hammer, bittern, September 1 to April 1; sage-cock, hen and chickens (Humboldt, Elko, Eureka, and Lander Counties excepted), August 1 to April 1; river, lake, salmon, and brook trout, June 1 to January 1. In Humboldt, Elko, Eureka, and Lander Counties, the open season for sharp-tailed grouse is September 1 to March 15; for sage-chickens, August 10 to March 15.

New Hampshire.—Open season: Deer, moose, caribou, September 1 to December 1; ruffed grouse, partridge, quail, September 1 to February 1; plover, yellow-leg, sandpiper, woodcock, duck, rail, August 1 to February 1; raccoon and gray squirrel, September 1 to January 1; mink, sable, beaver, otter, fisher, October 15 to April 1; landlocked salmon and trout, April 30 to September 30 (during January, February, and March, lake-trout may be taken with single hook and line); white-perch or pike-perch, July 1 to May 1; black bass, June 15 to April 30; muscalonge, pickerel, pike, and grayling, any time except April and May. The taking of fish is prohibited in the vicinity of the State hatching-house, and between the upper dam of Livermore Falls in Compton and within half a mile below the same. Private lands are lawfully "posted" when a notice to that effect has been displayed in two public places in the town and on the lands; penalty, \$1 for each bird destroyed.

New Jersey.—Open season: Deer, October 15 to December 1; quail and rabbit, November 1 to December 31; woodcock, July 2 to August 1, and October 1 to December 16; grass-plover, August 1 to January 1; rail, September 1 to December 1; reed-birds and marsh-hens, August 25 to December 1; summer duck and squirrels, September 1 to November 1; black bass, Oswego bass, June 1 to November 1; European

pheasant, partridge, and grouse are protected until November, 1889. In Barnegat Bay and its tidal tributaries north of Good-luck Point and Bond House, the open season for ducks, geese, and brant is October 15 to May 1. In the same waters, night-shooting or shooting from staked boats is prohibited. In Musquito Cove and its tributaries, ducks and brant may be shot only between sunrise and sunset on Mondays, Wednesdays, and Fridays, from September 1 to May 1. Shooting wild pigeons within a quarter of a mile of a nesting-place is forbidden. Non-residents must obtain a license from the local Game Protection Society, if there be one for the county where it is intended to hunt or fish for trout, black bass, or salmon. A notice posted adjacent to private fishing-grounds is sufficient to render trespassers liable to a penalty of \$100, and for damages recoverable by law. All insectivorous birds, except English sparrows, are protected.

New Mexico.—Open season: Antelope, buffalo, deer, elk, mountain-sheep, wild turkey, grouse, and quail, September 1 to May 1; taking fish from a private pond, lake, or stream used for the propagation of fish, without owner's consent, is punishable.

New York.—Open season, for deer, August 15 to November 1; fawns protected at all times. Hounding prohibited in St. Lawrence and Delaware Counties; deer protected in Suffolk and Queens Counties till 1891. Wild duck and brant, open season, September 1 to May 1 (in Long Island waters, October 1 to May 1); quail, hare, and rabbit, November 1 to January 1; woodcock, August 1 to December 1; robin, meadow-lark, October 1 to January 1. Open season for trout and salmon of all kinds, May 1 to September 1 (in Queens and Suffolk Counties, and in Spring creek, Livingston and Monroe Counties, April 1 to September 1); black bass, Oswego bass, and muscalonge, June 1 to October 1 (in Niagara river above the falls, in St. Lawrence, Clyde, and Oswego rivers, and in Lakes Erie, Ontario, and Conesus, January 1 to May 20). In Lake Mahopac, and Columbia County, in Schroon lake and river, in Paradise Lake, and Friend's Lake, black bass are open July 1 to January 1. In Lake George and Brant Lake, July 20 to January 20; pickerel in Lake George, June 15 to February 15; other fish in Lake George and vicinity, July 1 to April 1. In Queens and Suffolk Counties the open season for ruffed grouse is November 1 to January 1; plover, bay-snipe, and shore-birds, July 10 to January 1; rail and meadow-hen, September 1 to January 1; trout and landlocked salmon, April 1 to September 1. In Rockland County, woodcock, August 1 to January 1; partridges, October 1 to January 1; quail and rabbit, November 1 to January 1; robin, meadow-lark, starling, squirrel, September 1 to January 1. In Oneida and Herkimer Counties the open season for woodcock is September 1 to January 1. In the Adirondack preserve the open season for trout is May 1 to September 1; for salmon-trout and landlocked salmon, May 1 to October 1. In Chautauqua County, wild goose, duck, teal, brant, coot, dipper, and grebe are open September 1 to February 1. Licenses are not required from non-residents except in Richmond County. No person may kill more than three deer in one season in the State of New York. Private grounds are "posted" in law, where a sign-board is maintained on every fifty acres of land near the boundaries thereof, or upon or near the banks of stream or pond in at least two conspicuous places; or by the service of written or printed notices; penalties in addition to actual damage, \$15 to \$25.

North Carolina.—Open season, for deer, August 15 to February 15; partridge, quail, dove, wild turkey, October 15 to April 1. In Currituck County, partridge and quail, December 1 to April 1; wild-fowl, November 10 to March 10; New Hanover County, partridge, quail, marsh-hen, woodcock, snipe, curlew, dove, October 15 to April 1; trout in counties west of the Blue Ridge, December 30 to October 15. In Clay, Cherokee, Jackson, Graham, Swain, Macon,

Transylvania, and Henderson Counties, game-birds are not protected at this writing. A general notice posted in two public places renders unauthorized hunters liable to a penalty of \$10 for each offense.

Ohio.—Open season, for deer, October 15 to November 20; wild turkey, November 1 to January 1; quail and prairie-chicken, November 1 to 30 (inclusive); ruffed grouse, pheasant, blue-winged teal, September 1 to December 31; wild duck, September 1 to May 31; woodcock, July 4 to December 31; muskrat, mink, otter, March 1 to April 15. The discharge of fire-arms on any lawn, park, or pleasure-ground directly appurtenant to or within gunshot of any occupied dwelling-house the property of another, or any charitable institution may be fined \$5 to \$20, or imprisoned thirty days, or both.

Oregon.—Open season: Male deer, July 1 to November 1; spotted fawn may not be killed, and no deer may be killed except for food. Elk, moose, and mountain-sheep are open, August 1 to January 1, but killing them for skins or horns is unlawful. Open season for swan and duck, September 1 to April 1; prairie-chicken and sage-hen, June 15 to April 1; grouse, pheasant, quail, July 15 to January 1; brook-trout, April 1 to November 1.

Pennsylvania.—Open season, for elk and deer, October 1 to December 16; wild turkey, October 15 to January 1; wild-fowl, September 1 to May 15; upland or grass-plover, July 15 to January 1; woodcock, July 4 to January 1; quail, October 15 to January 1; ruffed grouse, pinnated grouse, October 1 to January 1; rail and reed-bird, September 1 to December 1; squirrel, September 1 to January 1; hare and rabbit, November 1 to January 1; sea-salmon and speckled trout, April 1 to August 1; lake-trout, January 1 to October 1; all kind of bass, pickerel, and pike, June 1 to January 1. In Pike County the open season for deer is October 1 to December 1; ruffed grouse, September 1 to December 15; wood or summer duck, October 1 to January 5; woodcock, July 4 to December 15; quail, October 15 to December 1; squirrel, September 1 to December 15; salmon and speckled trout, May 1 to August 1; pike or pickerel, June 1 to February 15. In Presque Isle Bay and adjacent waters web-footed wild-fowl may be killed September 1 to May 1. Sailing for wild-fowl is forbidden in the waters of the State. Sunday hunting, hounding deer, and killing deer in the water, if driven there by dogs, are not lawful. Public notice by owners or lessees, and the posting of such notices adjacent to private fish preserves make trespassers liable in the sum of \$100 for each offense.

Rhode Island.—Open season, for woodcock, July 1 to January 1; ruffed grouse, wood-duck, black duck, gray duck, September 1 to February 1; grouse, heath-hen, November 1 to January 1; quail, October 15 to January 1; grass-plover, August 1 to May 1; dusky or black duck, summer duck, blue or green winged teal, September 1 to March 1; wild pigeons, netted or trapped, August 10 to January 1; trout, March 1 to August 15; black bass, except in Sneach pond, July 15 to March 1. All birds are protected from February 1 to September 1, except on one's own land, on penalty of a fine.

South Carolina.—Open season for deer, August 1 to February 1; wild turkey, partridge, dove, woodcock, pheasant, October 1 to March 15; fishing in Black river permissible, August 15 to June 1. Fire-hunting is forbidden, and trespass is punishable. A year's residence in the State is requisite to acquire the right to hunt and fish, but any land-owner may grant authority so far as concerns his own land.

Tennessee.—Open season for deer in Henry, Dyer, Giles, Maury, Davidson, Madison, Hamilton, Bedford, and Wilson Counties, September 1 to March 1; for wild turkey, September 15 to May 1; for pheasant, grouse, quail, partridge, woodcock, lark, and snipe, September 15 to March 1. In Montgomery and Clinton Counties, partridge, quail, grouse, pheasant, and lark are open October 15 to March 1; woodcock,

dove, and wild turkey, August 1 to March 1; snipe, plover, duck, September 1 to May 1. In Robertson, Lincoln, and Shelby Counties, the open season for deer, wild turkey, partridge, quail, grouse, pheasant, woodcock, snipe, and lark is September 1 to February 1. In Rutherford, Tipton, and Fayette Counties, quail and partridge are open October 1 to April 1. In Lake County deer may be shot, September 1 to May 1; turkey-hens, October 1 to March 1; turkey-cocks, September 1 to May 1; quail, September 1 to April 15. There are no restrictions against taking fish with hook and line except where the charge of trespass may lie. Private land is "posted" when notices are maintained on the four cardinal boundaries thereof, penalty \$2.50 to \$5.

Texas.—Open season, for deer, June 1 to December 1; prairie-chicken, August 1 to March 1; quail, partridge, September 1 to March 1; turkey, September 1 to May 1. A very large part of the State is by law exempted from all restrictions. In a few counties special laws exist, which must be seen in full to be understood.

Utah.—Open season, for antelope, deer, mountain-sheep, and elk, September 1 to December 1; quail, partridge, grouse, April 1 to March 15; imported game-birds protected till March, 1887; beaver and otter, open, April 1 to November 1.

Vermont.—Deer, protected till November, 1890. Open season for wild geese and ducks, September 1 to May 1; quail, wood-duck, partridge, September 1 to February 1; woodcock, August 15 to February 15; mink, beaver, fisher, otter, November 1 to April 1; trout, landlocked, salmon, salmon-trout, September 1 to May 1; bass, pike, and perch, January 15 to February 1; white-fish, any time except November 1 to 15. Certain ponds, as Perch, Royal Tuell's, Ludlow, and Plymouth, are protected by local laws. Two notices, conspicuously posted, protect private lands in the law. Penalty, \$10, in addition to damage.

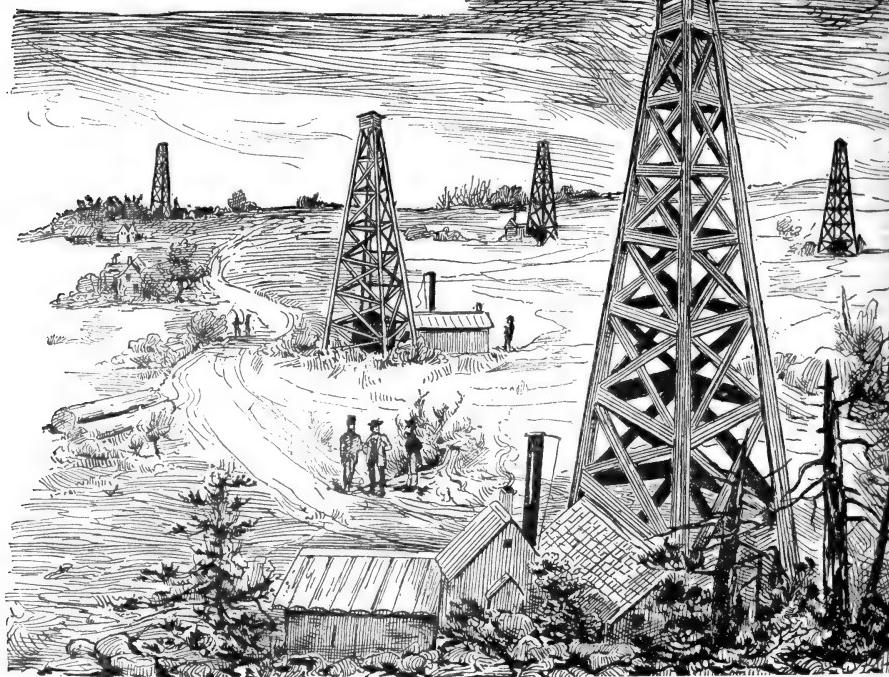
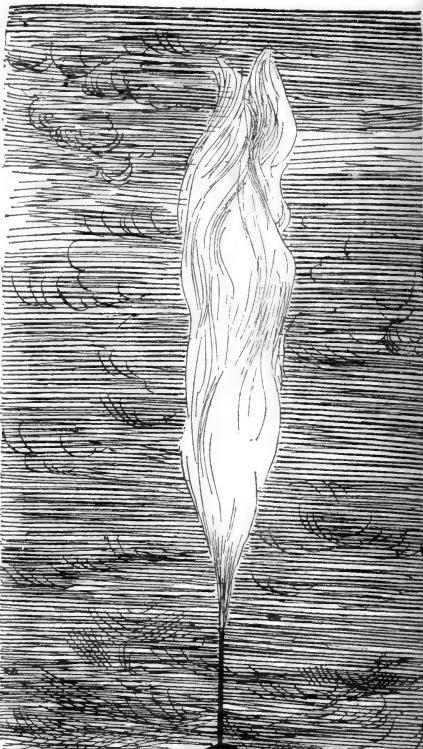
Virginia.—Open season, for the whole State, woodcock, July 1 to February 1; wild water-fowl, except wood-duck and sora, September 1 to May 1. Marsh-hen may not be killed after June 20 (eggs protected after that date); willet, January 1 to July 20; gull or striker, September 1 to January 1 (eggs protected January 1 to July 1); mountain-trout, April 1 to December 15; black bass, pond-bass, July 1 to May 15. West of the Blue Ridge the open season for pheasants and wild turkeys is September 1 to February 1; partridges, October 15 to January 1. Elsewhere in the State, partridges, pheasants, and wild turkeys are open October 15 to January 15; deer, October 15 to January 1. In Mecklenburg County, the season for partridge, quail, and turkey is October 15 to January 1; deer, August to January 1. In Alleghany, Bath, and Highland Counties, deer may be hunted August 15 to December 25. In Alexandria and Fairfax Counties, ortolan, redbird, and blackbird, may be shot September 1 to January 1; hare and rabbit, September 1 to January 15. There is for the present no open season for deer in Frederick, Wythe, and Bland Counties. In the following named counties the open season for partridge and quail is November 1 to February 1: Brunswick, Dinwiddie, Chesterfield, Henrico, Hanover, Caroline, King George, Westmoreland, Northumberland, Richmond, Lancaster, Essex, Middlesex, King and Queen, Gloucester, Mathews, King William, New Kent, James City, York, Elizabeth City, Warwick, Charles City, Prince George, Surry, Nottoway, Lunenburg, Isle of Wight, Sussex, Southampton, Greensville, Nansemond, Norfolk, Princess Anne, Accomack, and Northampton. In Rockbridge County, the open season for partridges is October 15 to January 15.

Washington Territory.—Open season, for deer, elk, and moose, August 15 to January 1; mountain-sheep, prairie-chicken, sage-hen, swan, wild duck, August 1 to April 15; grouse, pheasant, partridge, August 1 to January 1; brook-trout, April 1 to November 1. Hounding deer is forbidden in Thurston, Cowlitz, Whatcom, and Lewis Counties.

West Virginia.—Open season, for deer, September 1 to January 15; quail, October 15 to January 1; turkey, ruffed and pinnated grouse, September 1 to February 1; wild duck, geese, and brant, November 1 to April 1; Jack salmon, white salmon, June 15 to May 1; brook-trout, landlocked salmon, January 1 to September 1.

Wisconsin.—Open season, for deer, October 1 to December 1; woodcock, July 10 to January 1; quail, partridge, ruffed, pinnated, and sharp-tailed grouse, wood, mallard, and teal duck, August 15 to January 1; wild pigeons protected within three miles of nesting-place. Brook-trout may be taken April 15 to August 15; black bass and wall-eyed pike, May 1 to February 1.

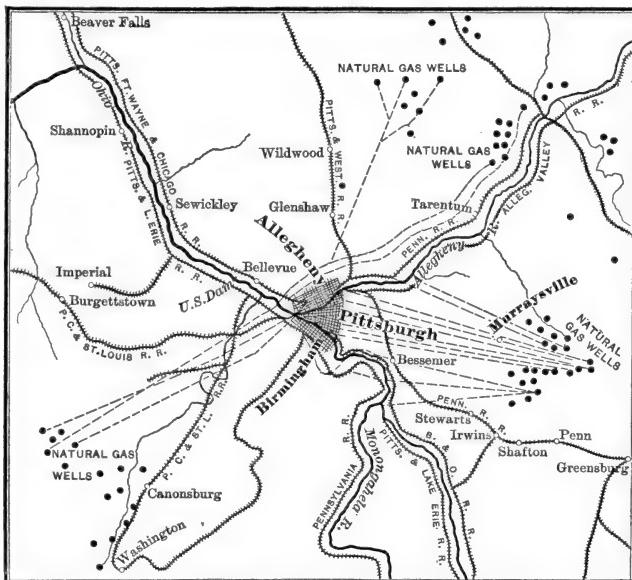
GAS, NATURAL. Inflammable gas, capable of producing light and heat, is generated in vast quantities within the earth in the vicinity of carbonaceous deposits, and often in connection with beds of rock-salt. The "eternal fires of Baku," on the shores of the Caspian Sea (whence, by-the-way, it is now proposed to lay a pipe-line across the desert to the Black Sea), have burned for many centuries. In the Chinese province of Szechuen, inflammable gas rises from beds of rock-salt at a depth of 1,500 feet or more, and has long been used for illumination and for evaporating brine, bamboo pipes being used as conduits. At Marmaro, Hungary, a deposit of salt at a depth of 120 feet yields a supply of gas sufficient for lighting the mines. In the States of New York, Ohio, and Pennsylvania, natural gas has for about thirty years been used to a considerable extent, notably in Fredonia and Bloomfield, N. Y., Erie, Pa., and East Liverpool, Ohio. The inn at Fredonia was illuminated with natural gas in 1824, on the occasion of Lafayette's visit



to the town. In East Liverpool the first well, 450 feet deep, was opened in 1859, and at latest accounts was flowing as copiously as at first, although many other wells have been driven in the immediate neighborhood and flow with equal freedom. The light is brilliant and the combustion so perfect as to be absolutely free from smoke. It is practically the only fuel used for manufacturing purposes in the town. This does not exhaust the list of localities in the United States where natural gas has been in daily use for a number of years; but recent discoveries in Pennsylvania have well-nigh caused the earlier ones to be forgotten. The great coal-measures and oil-fields of Pennsylvania apparently offer all the conditions of an abundant yield of natural gas, and for many years it has casually served as fuel for some of the pumping-engines of oil-wells. The gas question, however, was so overshadowed by the larger interests of coal and oil production that it did not attract general attention until, in 1878, it refused to be longer ignored. A well was being driven for oil at Murraysville, eighteen miles east from Pittsburgh, and had reached a depth of 1,320 feet, when, without a moment's warning, the entire works at the mouth of the well were blown into the air, and the roar of the escaping gas was heard at a distance of five miles. Four two-inch pipes were laid from the mouth of the well, and the gas burned with wonderful brilliancy. For five years the valuable product was wasted; but experiment showed that it could be conducted through pipes, and it was successfully introduced in steel-works near Pittsburgh. Other wells were driven in the Murraysville district, and in 1884 the gas was piped to Pittsburg, where it is now so largely used for all purposes of light and heat that it promises altogether to supersede coal. When it was first introduced in the city, such was the anxiety of the people to secure it for domestic and manufacturing purposes that in many instances the plumbing and pipe-laying were imperfectly done, and several terrible explosions occurred. These were mainly due to the high pressure at which the gas was passed through the pipes, for, unlike artificial gas, it is odorless and gives no notice of its presence until it is ignited. Careful workmanship and

reduction of pressure have so diminished the danger that no accidents have occurred recently. What will be the result of multiplying outlets for such enormous interior pressures, remains to be seen, and alarmists predict that when the subterranean reservoirs are emptied of gas the vacuum must of necessity be filled by the superincumbent earth. Such a contingency is so remote, however, that few residents are disturbed by the suggestion.

As yet no way has been devised of limiting the flow of the gas, and all that can not be used goes to waste. At Murraysville the largest well yields about 30,000,000 cubic feet in twenty-four hours, and of this only a small proportion can be utilized. The surplus escapes through a six-inch pipe, which is carried up to a height of about twenty feet from the ground. The



MAP OF THE NATURAL GAS REGION.

initial velocity is such that it does not ignite within several feet of the end of the pipe. Mr. Andrew Carnegie thus describes its appearance by daylight: "Looking up into the clear blue sky, you see before you a dancing golden fiend, without visible connection with the earth, swayed by the wind into fantastic shapes, and whirling in every direction. As the gas from the well strikes the center of the flame and passes partly through it, the lower part of the mass curls inward, giving rise to the most beautiful effects, gathered into graceful folds at the bottom—a veritable pillar of fire. There is not a particle of smoke from it. The gas from the wells at Washington (about twenty miles southwest from Pittsburg) was allowed to escape through pipes that lay upon the

ground. Looking down from the roadside upon the first well we saw in the valley, there appeared to be an immense circus-ring, the verdure having been burned and the earth baked by the flame. The ring was quite round, as the wind had driven the flame in one direction after another, and the effect of the great golden flame lying prone upon the earth, swaying and swirling with the wind, was most startling. The great beast Apollyon, minus the smoke, seemed to have come forth from his lair again."

The territory underlaid by the gas is not as yet clearly defined. In general terms, a belt half a mile wide running through Murraysville, Pittsburg, and Washington, marks the richest territory, the most abundant yield being in the Murraysville district. Wells have been driven at different points along this belt, and gas has usually been found; but salt-water often flows into the wells and renders the gas useless. Another gas-field exists twenty miles northwest of Pittsburg, and still another in Tarentum, about the same distance above the city, on the Alleghany river. The principal gas-field, therefore, appears to be included in a circle of twenty-five miles radius, with Pittsburg as a center. But discoveries have been made of practicable sources of supply far outside of these limits in Ohio, West Virginia, and New York, and no one at present ventures confidently to predict where it does or does not exist. The gas is believed to result from the decomposition of animal and vegetable substances in locations whence it rises into natural caverns, or reservoirs, roofed by impervious rock or clay strata. To a limited extent, gas has recently been discovered in Illinois and Kansas.

The usual method of driving a well is to erect a derrick and sink a six-inch iron pipe until bed-rock is encountered—ordinarily 75 to 100 feet. Eight-inch drills, weighing 3,000 to 4,000 pounds, are then brought into use and worked with an up-and-down stroke of four or five feet. An eight-inch well is thus bored

to a depth of 500 feet, when a 5½-inch wrought-iron pipe is put down and the drilling continued with six-inch drills until gas is struck, when a four-inch pipe is put down. The average time consumed in sinking a well is forty to sixty days, and the cost is about \$5,000. The cost of piping, including right of way, is estimated at \$8,000 a mile. Twelve lines of pipe at present convey gas from the various wells to the manufacturing establishments in and around Pittsburg. The pipes are from six to twelve inches in diameter.

The initial pressure of the gas at the surface of the earth is from 200 pounds to a square inch upward to 1,000 pounds, and even more. This decreases rapidly from leakage and other causes until it is not more than 75 pounds to a square inch ten miles from the well. Contracts are now made in Pittsburg to supply private houses with gas for all purposes at the same price that was formerly paid for coal. Its introduction in manufactories has thrown a large number of stokers and firemen out of work. One manufacturer says that a single man is now employed to watch the water-gauges, where thirty formerly engaged in feeding the fires. The absence of smoke renders the city a far more agreeable place to live in than formerly, and it is regarded as within the range of probability that, instead of being the grimiest city in the United States, it may shortly become one of the cleanest and most attractive.

Elaborate tests have been made of the relative heating properties of natural as compared with artificial gas, and, without following out the details of calculation, the result may be given: 54·4 pounds of bituminous or 58·4 of anthracite coal is equal in heating-power to 1,000 cubic feet of natural gas. On this basis calculations as to cost may easily be made.

The following chemical analyses are from a paper read by Dr. H. M. Chance before the American Institute of Mining Engineers, as reported in their proceedings (May, 1886):

ELEMENTS.	1	2	3	4	5	6	7	8	9	10
Carbonic acid, CO_2	0·80	0·60	.....	0·40	0·34	0·35	0·66	2·23	.....	0·30
Carbonic oxide, CO	1·00	0·80	0·58	0·40	Trace.	0·26	Trace.	.....	1·00	0·60
Hydrogen, H	20·02	26·16	29·03	35·92	6·10	4·79	13·50	22·50	9·64	14·45
Marsh-gas, CH_4	72·18	65·25	60·70	49·58	75·44	80·65	80·11	60·37	57·85	75·16
Ethane, C_2H_6	3·60	5·50	7·92	12·30	18·12	4·39	5·72	6·80	5·20	4·80
Propane, C_3H_8.....	.....	.....	.....	.....	Trace.	Trace.	.....	.....	.....	2·89
Nitrogen, N}.....	.....	.....	.....	.....	.....	.....	7·32	23·41	.....	2·89
Oxygen, O	1·10	0·80	0·75	0·80	.....	.....	.....	0·88	2·10	1·20
Illuminating hydrocarbons.....	0·70	0·80	0·98	0·60	.....	0·56	.....	.....	0·80	0·60
Katio, C to H (weight).....	2·72	2·59	2·64	2·59	3·08	3·00	2·88	2·70	2·91	2·84

1, 2, 3, 4. From well supplying Edgar Thomson Steel-Works, by S. A. Ford.

5. Burns well, Butler County, Pa., by Sadtler.

6. Luckburg well, Armstrong County, Pa., by Sadtler.

7. Harvey well, Butler County, Pa., by Sadtler.

8. Cherry-Tree well, Indiana County, Pa., by Sadtler. Small flow through fresh water.

9, 10. Two wells near East Liberty, Allegheny County, Pa., by S. A. Ford.

The attention of engineers is largely directed at present to the possibility of long-distance transportation of the gas, and some of the best authorities believe that this will be accomplished by drawing it through large conduits,

say five feet in diameter, by means of suction-fans. Whether the supply is destined shortly to give out, in consequence of the increasing and wasteful demands at present made upon it, is purely problematical; but the unvarying

flow of the best wells seems to indicate that for many years to come no fears need be entertained of exhausting the supply.

In December, 1886, there were, in the immediate neighborhood of Pittsburg, six companies, controlling 107 wells and 500 miles of pipe. The total area of cross-section of pipe leading into the city is estimated at 1,346,608 square inches, with an aggregate capacity for delivering more than 25,000,000 cubic feet of gas a day, at the moderate rate of two cubic feet a minute for each square foot of cross-section. The Philadelphia Natural Gas Company, the largest in Pittsburg, supplies more than 400 manufactures and 7,000 dwellings with gas for light and heat. All the companies furnish gas at so much a year, according to contracts based upon a general estimate of the amount required. A house containing twelve rooms is supplied for from \$70 to \$90 a year. Devices are in use which regulate the temperature of rooms so that it does not vary more than one or two degrees, no matter what the outside temperature may be; and similar devices adjust the supply of gas to illuminating burners, so that it does not vary, whatever may be the pressure in the pipes. Leak-detectors, too, have been brought to a good degree of perfection, and in other ways the chances of accident have been reduced until the gas is regarded as no more dangerous than other means of securing light and heat.

GEOGRAPHICAL PROGRESS AND DISCOVERY.
Africa.—Reports were received early in the year that the English Bishop of Central Africa, Rev. S. Hannington, and almost his entire company of 50 men, had been massacred in Usoga. The report was unhappily confirmed by a dispatch received from Zanzibar in February. The bishop, desiring to open a more direct route of communication between Uganda and the coast, had followed the general course of Thomson's route, and arrived in October, 1885, at the northern shore of Victoria Nyanza. After leaving the black missionary, Rev. W. Jones, in Kawirondo, northeast of the lake, he went on to the territory of Usoga, east of the Victoria Nile. Here the company were taken prisoners by a band of Waganda, and delivered to the King of Usoga, who sent messengers to his superior, King Muanga, of Uganda, for instructions. The messengers were sent back, October 25, with orders that the execution should take place; and neither the influence of the three English missionaries, nor that of the members of the Catholic mission, could prevent the fulfillment of the command. It took place October 31, in Usoga; only four men escaped and reached Zanzibar with Mr. Jones. The only reason that can be given for the crime is the suspicion with which the King has been inspired toward Europeans by his Arabian advisers. The bishop did not take the usual route from the southern shore of the lake, but reached the border of Uganda by way of the province of Usoga. This is regarded as

the most insecure part of the kingdom, the people cherishing a strong feeling of independence. The English and the Roman Catholic missionaries are placed in a very unsafe position by this event. Dr. Fischer, who was at the time at the south end of the lake, found his mission also interfered with, as he could hardly hope to accomplish the relief of Emin Bey and his companions under such circumstances.

By a fortunate accident, Bishop Hannington's journal fell into the hands of the English missionaries in Rubaga, and a copy of it was sent to England, to be published by the Church Missionary Society. Mr. Mackay says that it appears from the journal that the bishop followed very nearly the route of Thomson's return journey from the Massai country. It extends from July 23 to October 6; to the arrival at Sakwas, near Kwa-Sundu, at the northeast corner of Victoria Lake. Mr. Mackay, who has been in Uganda eight years, describes the danger in which the English missionaries have been from the designs of the King; their position was the more critical, as the suspicion of the King was strengthened by the arrival of Bishop Hannington in Usoga simultaneously with that of Dr. Fischer in Kagei, of letters from the Sultan of Zanzibar, of the English resident Dr. Kirk, and of the Egyptian Government to Emin Bey, and repeated attempts to relieve the latter. The missionaries could do nothing for him, in the danger in which they themselves stood; but they managed to warn Dr. Fischer in time not to take the advice of the Arabs in Uganda and be enticed to Rubaga, where it was designed to murder him.

All attempts hitherto made for the relief of Emin Bey have failed—a fact not surprising, considering the difficulties of the undertaking, and the insufficiency of all the measures taken to reach him. At last, the Egyptian Government seems to have awakened to a sense of responsibility in the matter, and, besides bestowing upon him the title pasha, has determined to apply £10,000 to the support of an expedition for his rescue. Some private individuals in England will also contribute to the expedition, which is to be led by Henry M. Stanley. Emin Pasha is Dr. Schnitzler, of Silesia, in Austria, who entered the Turkish army as a surgeon. He was appointed by Gen. Gordon, in 1878, to be Governor-General of the Egyptian Equatorial Provinces, an immense district having some 6,000,000 inhabitants. He found the affairs of the provinces in a wretched condition, but went energetically to work to improve them, and with such success that in three years the slave-traders were driven from the provinces, and the finances, which had formerly shown a deficit of £38,000 per annum, presented, at the close of 1881, a surplus of £8,000, gained, not by heavier taxation, but by honest and economical administration. He taught the natives to cultivate

cotton, rice, indigo, wheat, and coffee, and introduced among them some knowledge of weaving, boot-making, and the manufacture of wagons. He has established a hospital and a weekly mail service, and has done something toward the founding of schools. He is, moreover, a scientist, and employs his leisure in making meteorological observations, collecting zoölogical and other specimens, and exploring his province. In the first half of the year 1886 he made a journey to the western side of the Albert Nyanza, crossed it, and returned by another way, carefully surveying the entire route. He has planned a complete survey of the lake, perhaps with a view of attempting a retreat in that direction in case the followers of the Mahdi should undertake to attack his province, using the steamer they have captured at Khartoum.

Emin Bey was one of the first to foresee the troubles in the Soudan, but his advice as to the best method of dealing with them was disregarded. After the fall of Khartoum, his communication with Egypt was cut off. A route might then have been opened from the coast of Zanzibar, either to bring away Emin and his troops, or to send them supplies for their defense. In 1885, Dr. Fischer made an attempt to relieve him, but was prevented by the hostility of the King of Uganda. Emin has gradually retreated from Lado, his former headquarters, to Wadelai, farther up on the Nile, near the Albert Nyanza.

Intelligence has been received from time to time through the year, by way of Mr. Mackay, a missionary, of the movements of Emin and his army, variously stated to consist of from 2,500 to 4,000 men. He was at one time reported to be withdrawing from Lado toward the eastern coast, and to have been compelled by an attack of the Bakede to fortify himself in their territory, to await help from Uganda or Unjoro. It was hoped that the young King of Uganda, Muanga, would be friendly to him. But Muanga seems to have been completely turned against all Europeans by Asiatic influence, and it is said that Mr. Mackay himself is virtually a prisoner in the province.

Emin's messages were at first intercepted, but within the past year some letters have been received. Of his men he wrote: "Deprived of the most necessary things, for a long time without any pay, my men fought valiantly; and when at last hunger weakened them, when after nineteen days of incredible privations and sufferings their strength was exhausted, and when the last torn leather of the last boot had been eaten, then they cut a way through the midst of their enemies, and succeeded in saving themselves." At the beginning of the year 1886 he wrote that he had ammunition for one year; but from later advices it appears that his supplies of ammunition, weapons, and other necessaries were nearly exhausted in July. He sent Captain Casati, the last European in his province, to Unjoro in July to effect the

opening of communication with the coast by way of Karagwe; but the King, Kabrega, dared not make any agreement with him, through fear of the King of Uganda. The relief expedition can hardly reach him before the end of seven or eight months, and his military stores must already be exhausted. Stanley has not yet declared what route he intends to take. The one through the Massai country is the shortest, about 820 miles in length, of which Thomson explored all but 300. That through Uganda is about 1,050 miles in length; and the Congo route, which has been proposed is about 1,900 miles long, 200 of which is still unexplored; and if the Mobangi should prove not to be identical with the Welle, the advance from that direction might be cut off. The recent seizure of Stanley Pool by the Arabs would in any case interfere with the journey up the Congo.

Efforts are also made in Italy for a relief expedition on account of Captain Casati, who is still with Emin Pasha. The Milan Society for Commercial Exploration, under whose auspices he went out, will co-operate with the Scottish Geographical Society, and the *Società Africana* of Naples has planned an expedition to be led by Captain Massari.

The German East African Company is continuing to increase its lands with great success, having added the district Nkhutu on the south, and on the east the district of Usaramo, with the important harbor of Dar-es-Salam, so that its southern boundary is now the river Lufidshi, with its northern tributary the Rueha, while on the north, since the addition of Usambara, Pare, Aruscha, and Dschaggia, it is bordered by the great mass of Kilimandjaro. Whether the company will succeed in cultivating this great territory depends on the result of the experiment to get the negroes accustomed to regular work. The proposed introduction of coolies and Chinamen will not settle the question, but will rather tend to complicate it and endanger the success of the undertaking.

The attempt of the engineer L. Amelot to cross the continent has come to an end with his death, which occurred on the 1st of December, 1885, in consequence of the hardships of the journey.

Dr. K. Jühlke, one of the pioneers in East African exploration, was murdered in December, 1886, in Kismaja. After he had taken possession, in company with Dr. Peters, of the districts Useguha, Nguru, Ukami, and Usagara for the German East African Company in 1884, he secured the district of Paugani up to Kilimandjaro in 1885. In August, 1886, he joined the expedition on the steamer "Isolde," and in October took possession of the district of Witu to the mouth of the Juba.

Bishop Smithie returned to the east coast from Lake Nyassa, where he had been at the launching of the missionary steamer "Charles Janson" at the station Matope. He took his

route along the Lujende, following it from its source to its junction with the Royuma, and thence to its mouth. He confirms the view of Consul O'Neill, that the Lujende is not an outlet of Lake Kilwa (Schirwa), but of Lakes Chiuta and Amarauba, which are separated from Lake Kilwa by a low ridge. Mr. Last, who was sent out by the London Geographical Society, designed to make a thorough investigation, believing that there is some connection between the Lujende and that lake. The natives have uniformly asserted that such a connection is indicated by the rising of the lake in the rainy season.

According to the treaty of Dec. 17, 1885, ending the long dispute between France and Madagascar, France gains the right to occupy the Bay of Diego Suarez at the northern point of the island. The bay forms a large and safe harbor, and is therefore of consequence from a military point of view. The land, according to Dr. Keller, a Swiss traveler, is poor, barren, and almost destitute of water.

The French protectorate has been extended, according to a treaty of April 24, 1886, over the whole group of the Comoro Islands, excepting, of course, the island Mayotta, which has been a French colony since 1845.

In the death of Soleillet, which occurred at Aden September 10, the French interest in Africa has met with a serious loss. It was his aim for a long time to open a direct commercial route from Senegal to Algiers, and to make the upper Niger region accessible. In 1881 he transferred his efforts to the East, where he met with better success. The founding of the colony of Obock was due to him.

The Portuguese expedition into Lunda under Major H. de Carvalho, arrived in January at the Tschikapa, crossing it at $7^{\circ} 17'$ south latitude. The route seems not to have differed greatly from that taken by Buchner on his return. Since the death of the last Muatiamvo, complete anarchy reigns in Lunda. It was feared that the kingdom would fall into many small territories.

The claims of Portugal to African territory are set forth in a "Map of Meridional Portuguese Africa," recently published in Lisbon. It represents Portuguese Africa as extending from ocean to ocean. Of the Congo basin it includes only the left side of the Kuango, but takes in the whole basin of the Zambesi, excepting that part of the Nyassa territory extending northward from $11^{\circ} 30'$ south latitude. It includes the whole Matabele country, though no Portuguese traveler has as yet explored it. On the other hand, the territory claimed in the north is smaller than that usually laid down by the Portuguese as their possession.

France and Portugal concluded a treaty on the 15th of May, settling the boundaries of their possessions in Guinea and the region north of the Congo. Portuguese Guinea is bounded as follows: The line beginning at Lake Roxo passes midway between the rivers

Cazamance and San Domingo de Cacheu to the intersection of $15^{\circ} 10'$ longitude west from Greenwich, and $12^{\circ} 40'$ north latitude, then follows this parallel to $13^{\circ} 40'$ west from Greenwich. That meridian forms the eastern boundary as far as $11^{\circ} 40'$ north latitude. The southern boundary starts from the mouth of the Rio Cajet, between the Portuguese island Catak and the French island Tristao, passes midway between the rivers Componi (Tabati) in the south and Cassini in the north, then between the northern tributary of the Componi and the southern of the Cassini, and to the intersection of $18^{\circ} 40'$ west longitude from Greenwich and $11^{\circ} 40'$ north latitude. Portugal receives all the islands between the longitude of Cape Roxo, the coast, and a line passing from the mouth of the Rio Cajet through the Passe-des-Pilotes toward the southwest as far as $10^{\circ} 40'$ north latitude, and on this parallel to the meridian of Cape Roxo. According to this arrangement, Portugal leaves to France the possession of Ziguinchor, on the Cazamance, while France gives up its claim to Bissasma and the banks of the Cassini. Portugal also acknowledges the French protectorate over Futa Djallon, while France pledges itself not to interfere with the rights granted the Portuguese by the Almamy. The Portuguese colony of Cabinda, north of the Congo, is extended considerably toward the north. The northern boundary begins at the junction of the Loema, or Luisa Loango, and the Lubinda, passes midway between the two rivers, then from the most northerly source of the river Luali, a southern tributary of the Loema, follows the water-shed between the valleys of the Loema and the Chiloango up to $12^{\circ} 50'$ longitude east from Greenwich, then follows that meridian to the Chiloango, whose course as far as the mouth of the Luculla forms the boundary of the Congo Free State.

The long unsettled question as to the identity of the Mobangi and the Welle is not yet answered beyond a doubt, but most of the explorers of the region agree in regarding the two as one and the same river. It was formerly supposed that the Welle, which rises in the Blue mountains and takes a westerly course, was the upper part of the Shari, which flows into Lake Tchad. Dr. Junker, who seven years ago began the exploration of the western tributaries of the Nile and the water-shed between the Nile and the Welle, found the latter tending toward the Congo. He also found the stream at the lowest point he reached larger than the Shari at its mouth. The Mobangi was explored by Messrs. Grenfell and Sims upward from its mouth to a point about 150 miles from the lowest point reached by Dr. Junker. The intervening stretch has not been explored; but it is the general opinion that the Welle and the Mobangi are one. Dr. Oscar Linz has had in view an expedition for the exploration of the Welle, but has been prevented from carrying it out. He has, however, gone up the

Congo, and reports great changes from the time of Stanley's voyage ten years ago. The country is practically in the hands of Arabs and Zanzibari slavers and traders, and the natives have withdrawn into the forests. Immense rice-fields border the river at the Arab settlements. Kasonge is the headquarters of Tippoo Tip and other Arab traders.

Rev. Mr. Grenfell also explored the Lulongo and the Juapa, navigable tributaries to the Congo from the left, in the mission steamer "Peace." He describes the Lulongo as entering the Congo about 45 miles north of the Leire, its course being almost directly west. Although not one of the largest tributaries of the Congo, it is the most important, he says, if the value of its ivory and slave trade be accepted as a measure. At its mouth it is only about 500 yards wide, though deep and swift; a few miles above it is from half to three quarters of a mile in width. The travelers passed five towns, about ten or twelve miles apart, built on islands and adjacent mainland, evidently with a view to furnishing a place of retreat in case of attack from either the river or the interior.

The series of towns next succeeding were built on splendidly fruitful land, from 40 to 100 feet above the river, with farms about them in which were great quantities of plantain. After passing the town called Masumba, they found but one small town, Lungunda, in a stretch of 100 miles; then Maringa was reached, and proved to be on the edge of a very populous district and a very busy one, as indicated by the number of trading-canoes encountered. The people of Maringa were evidently suspicious of the strangers, and Mr. Grenfell says it was not till after more than an hour had been spent in diplomacy that he came into actual contact with them.

At Ditabi, three or four hours farther on, a class of people differing considerably from those down the river was met with. They lived in houses raised on posts four or five feet above the ground, though there seemed to be no reason for fearing a flood. Their tribal marks also were very different; for they had a row of lumps as large as peas right down their noses, and their bodies covered with bean-sized cicatrices about an inch apart. They carried bows and arrows, and wore naked-bladed knives upon their thighs, instead of being armed with spears and sheathed knives. Several blacksmiths fresh from their forges were seen. The missionary's party had lost their fire-wood by the sinking of their small boat farther down the river. At Ditabi they offered beads for fire-wood; and the people were so anxious for the beads that after exhausting their wood-piles, they brought live sticks from their fires and even cut up their wooden beds into suitable lengths and sold them. Several more towns built on posts over low ground were passed, until an important market was reached where no European goods were on sale, and no signs of communication with civilization were seen

except a little brass beaten into ornaments and a few beads and cowries. Fish and crocodiles were exchanged by the people of the river-banks for farm-produce brought from the interior. They did not care for cloth; an empty biscuit-tin or a few beads went further than a fathom of print. Seven more villages were passed in as many miles, and then no more were seen, though the journey extended 100 miles farther. Some abandoned sites were passed, however, and many paths to the water from distant towns. At a point 400 miles from the Congo the river was no longer navigable, and the voyagers returned to the Congo, and after going south for six hours began to ascend Mr. Stanley's Black river. Some distance up this river they were told that a short time before a canoe had gone up the Bosira branch on a trading-voyage; that it had been seized by the Irara people, who killed and ate the crew, saving only the chief's son, whom they were holding for ransom. The missionaries could not induce the cannibals to restore him to his father. Passing up the river, they had some trouble to make friends of the natives in the towns along the route. Among them was a race of dwarfs, whom they found not to be as small as the natives are fond of representing them; they are about four to four and a half feet in height, and have black beards, big heads, and no necks to speak of; their neighbors will not admit that they have any necks at all. Some of the natives shot arrows at them as they advanced toward the end of navigation. Mr. Grenfell regarded this region as the least hopeful for mission-work of all he had visited. Returning, the travelers steamed up the Juapa for 400 miles. The people for some fifty miles were friendly and hospitable; but farther on they seemed suspicious, and those still beyond made hostile demonstrations, at one place attacking the travelers with a shower of poisoned arrows. In all, nearly 1,000 miles of new water-way were explored.

Lake Liba, which is spoken of by the natives of Cameroon, is supposed by Lieut. Mizon not to be a lake at all, but a tributary of the Congo, having its source on the eastern slope of the Serra de Cristal; he thinks that this river, if it is a river, whose source lies so near the coast, will form the most convenient connection with the Congo, believing that the other routes laid out are much too costly; he especially condemns De Brazza's attempt to recommend the Ogowe as a means of ship-communication.

It is ten years since Savorgnan de Brazza first reached the Ogowe region; and the labors of those ten years have led to noteworthy results. The French influence, which formerly existed only on paper, is now represented by an unbroken chain of stations reaching to the Congo and by that part of the Congo basin and the Kuilu-Niada territory secured to France by the treaty of February, 1885, with the Congo State. During the years 1883-'85, which De

Brazza devoted to the organization of this French territory, "Equatorial France," twenty-six stations have been founded, as follow : Mandschi, at Cape Lopez; Njole, Okola, Obombi, Atschuka, Bowe, Bundschi, Madiville, Dumi, and Franceville on the Ogowe; Diele, Ngampo, Leketi, and Mbotschi, on the Alima; Brazzaville, Ngantschuno, Mbe (Makoko), Nkeme, Bonga, and Nkundscha on the Congo and its right-hand tributaries; Pointe Noire, Loango, Bas Kuilu, Ngotu, Niari-Ludima, and Philippeville on the coast and in the Kuilu valley. The exploration of the inland region has been begun by Dolisie, who is examining the Nkundsche, supposed by De Brazza to be identical with Grenfell's Mobangi, and by Jacques de Brazza, Savorgnan's brother, who discovered in September a new tributary of the Congo, the Sekoli. De Brazza is enthusiastic about the resources of the region, and favors the building of a railroad along the cataracts of the Congo. This has been already proposed ; but English capitalists, who have had it under consideration, have decided not to undertake it; and a committee in Brussels has been appointed to decide whether to attempt the carrying out of the project.

Lieut. C. Coquilhat contributes an article on the upper Congo to the "Bulletin" of the Antwerp Geographical Society. He begins by advocating the hypothesis that the land of this region is the bed of an ancient lake of enormous extent, the western boundary of which he thinks marked by the heights to the west of the present course of the rivers Ubangi and Kuango. This view he deduces from the configuration of the soil that he noticed along the Congo above Leopoldville, and he cites the various altitudes of the surrounding country in proof of it. This theory, he thinks, will account for the difference of the fertility of the upper and lower Congo, which is very great, the vegetation of the former being equaled, in his opinion, by that of India alone. There is, too, another great difference which also supports this supposition, namely, the fact that all the important tributaries of the Congo belong to its upper course, not one of any size being found below Kwamouth. In the upper Congo, too, at the Bangala station, during great floods many of the neighboring localities are inundated, so little is the land raised above the river-bed. Lieut. Coquilhat concludes with an account of the fauna of the Bangala country, and the descent and character of the people. Captain Hansen's register of the rainfall in Bangala since May, 1884, is as follows :

May, 10 days, 84 hours.	Jan., 8 days, 16 hours.
June, 9 " 27 "	Feb., 6 " 9 "
July, 6 " 28 "	March, 11 " 27 "
Aug., 7 " 27 "	April, 18 " 43 "
Sept., 6 " 24 "	May, 10 " 19 "
Oct., 8 " 25 "	June, 12 " 85 "
Nov., 8 " 24 "	July, 15 " 27 "
Dec., 7 " 15 "	

Dr. Büttner has successfully solved the problem of the German Kuango Expedition by following the river to its end ; starting from San

Salvador and taking a more northerly route than Dr. Wolff's, he traced the river to its end at Kwamouth.

The unsettled question as to the boundaries of the European colonies on the West African coast bids fair at length to be amicably arranged. The German Government has made compacts with Great Britain and France, according to which it renounces all sovereignty over Koba and Kabitai, and recognizes the authority of France over the territory between the Rio Nunnez and Mellacoree. The German Empire also recognizes the protectorate of France over Great Popo on the slave-coast, and France recognizes that of Germany over the Togo territory and its extension to Porto Seguro and Little Popo. The boundary adopted between the German protectorate of Cameroon and the French colony of Gaboon is the course of the Campo river as far as the tenth degree of longitude east from Greenwich, and from that point on a parallel to its intersection with the fifteenth degree. France thus gives up all claims on Malimba and Great Batanga, and the German Empire withdraws its claims to Bata, Banoko, and Benito. This, and the treaty with Great Britain settling the northern boundary of Cameroon, confirms the sovereignty of Germany over the upper districts of Cameroon.

G. Valdau and K. Knutson are two pioneer settlers on the southern slope of the Cameroon mountains, having taken up their residence there in the beginning of 1884. In the summer of 1885 they made the circuit of the mountains, taking a different and more extended route than any heretofore followed, going to Buea, then turning northward to Richards Lake, and then to Elephant Lake (Balombi-ba-Mbu), which they went around. Northward from the Meme they took a westerly course, arriving in the upper valley of the Mokono, apparently a tributary of the Old Calabar. From Balundu they turned southeast, recrossing the Meme, and at length reaching the coast at Bettikka (Colli). Their report gives many interesting ethnographic notes, and details regarding the number of inhabitants at the various points they touched. It is perhaps a matter of some political significance that they have made some progress toward the answer to the question as to the existence of the Rio del Rey, which, by the agreement of May 7, 1885, was made the boundary between the British Niger districts and the German colony of Cameroon. As they found the water-shed between the Meme and Old Calabar scarcely twenty miles (thirty kilometres) distant, the supposition seems to be justified that an actual Rio del Rey can hardly be between them ; but that this river, so called, like the Muni, Gaboon, and others, is only an estuary, formed by many small streams. This agrees with the report of Capt. von Schuckmann, which makes the Rio del Rey to be formed by two arms of water, the one from the northeast being the Meme, according to

the natives, while the other is connected with the Old Calabar.

The excursion of 1884-'85 to the posts on the upper Senegal and Niger, under Commandant Combes, has led to a further extension of the French dominion. A new post was founded near Niagassola, giving a second route from Kita to the upper Niger. The northern route leads by way of Kundu to Bammako, the southern by way of Niagassola to Kengaba. The district of Bure, between the head-waters of the Senegal and the Niger, important on account of its gold, was at the same time declared under the protection of the French Government. Combes, however, could not bring the Prophet Samory, who heads the resistance of the natives, to any decisive combat, although he crossed the Niger and pursued the prophet for a long distance. As soon as the French troops began to withdraw, Samory was at their rear, although he was several times driven back. For these reasons it became necessary to send a greater force; and Col. Frey was therefore dispatched the latter part of November, 1885. Progress has been made in filling the gaps in the telegraph line between the colony of Senegal and the posts on the upper river, so that there now remain only the ninety-seven kilometres between Matam and Bakel to be completed in order to make direct telegraphic communication between Bammako on the Niger and St. Louis, the capital of Senegal, and thereby with France.

In the northwest some attempts have been made to gain better knowledge of the least-known regions, and open them to trade. The district Rif, in Morocco, on the border of the Mediterranean, standing in a relation of loose dependence on the Government of Morocco, has always been closed to curious Europeans. The piratical inhabitants were long a terror to the commerce of the Mediterranean. The latest failure is that of H. Duveyrier, the explorer of the Sahara, who made a vain attempt this year to penetrate into the district, and whose notes on the journey that he did accomplish are to be published by the Paris Geographical Society.

A Spanish officer, J. Cervera Baviera, has published an account of a geographic-military expedition to the interior and along the coasts of Morocco, undertaken mainly with a view to an examination of the roads, the military works, and all points bearing on the subject of a possible campaign. He regards the port of Rabat as the best starting-point for offensive operations, the road from it to the capital offering few difficulties in the way of an army's march. The same officer has since been in charge of an expedition for the exploration of the Sahara, which left the station on the Rio Oro, June 16, 1886, and returned to it, July 24, after great suffering from the heat and the want of provisions and water, having gone 425 kilometres from the coast to Adrar, which they describe as a continuation of the desert, without vegeta-

tion, and poorly inhabited. Numerous astronomical and meteorological observations were made, geologic and natural history specimens collected, and a route laid out.

A young French traveler, Lieut. Palat, who went out to find a direct route for commerce between Algiers and Timbuctoo, and to explore the Tuareg country, has fallen a victim to the hardships of the journey. A part only of his journals was saved. This and his letters include details of his route from October, 1885, to January, 1886, from Géryville by way of Goléa to Gurara. From this it appears that this group of oases is considerably nearer to Goléa than has heretofore been supposed.

In the year 1876 an agreement was entered into on the part of Donald Mackenzie, the originator of the project to flood the western part of the Sahara with water, and the Moorish tribes at Cape Juby, that led to the giving up on their part of the district about the promontory called by the natives Tarfaja, and to the establishment of a station by the Northwest African Company. In 1880 the tribes were set on by the Sultan of Morocco, who feared that the trade of his subjects would suffer, and destroyed the station on the mainland, breaking up the trade for two years. During this time a stone fort was built on the ridge guarding the harbor, the materials having been brought from England and the Canary Islands. The English Government interfered, though refusing the company a charter granting rights of sovereignty, and the trade with the neighboring tribes and those more distant, began once more to flourish. Whether the attempt of the company to divert the trade from Adrar to Tarfaja will succeed, seems doubtful, since the Spanish station at Cape Ouro is only 430 kilometres distant, while Cape Juby is 650, and the Senegal, to which a great part of the trade has heretofore been directed, is about as far.

The boundaries between Tunis and Tripoli have long been unsettled, and an attempt has been made, by means of a compact between the French Republic and Turkey, through the Pasha of Tripoli, to have the matter definitely settled. The bay Ras Tadjer, on the Mediterranean coast, 32 kilometres east from Cape El-Bibau, has been selected as the starting-point of the line, thus giving the entire Bay of El-Bibau to French control.

Asia.—The discovery of coal of fair quality in accessible places, in the neighborhood of the Lena, will greatly facilitate the navigation of that river by steam—an undertaking heretofore attended with some difficulty on account of the loss of time connected with the procuring of wood and the lack of coal.

The Scientific-Industrial Exposition for Siberia and the Ural, planned by the Society of the Friends of Natural Science, has a grant of 5,000 rubles from the Russian Government as good as secured, and will be opened in 1887 at Ekaterinburg. Sections for exhibits in the

following departments are proposed: 1. Mineralogy, geology, botany, zoölogy, zoötomy, and anatomy; 2. Geography, cartography, commerce, statistics, climatology, earth-magnetism; 3. Anthropology, ethnography, and archaeology; 4. Mining and the working of metals; 5. Industry and hand-labor; 6. Domestic industry; 7. Land and forest culture, fruit and vegetable raising, hunting and fishing.

The Norwegian explorer, L. Stejneger has made a report giving full information concerning the present condition of Bering's Island, which he sailed around and explored thoroughly in August and September, 1882, adding many details and some corrections to the descriptions given by the German naturalist Steller, whose unhappy winter in the island made the years 1741-'42 memorable in the history of discovery. In his memory, Stejneger named the highest point of the island Mount Steller. From many evidences he believes the island to be rising. He agrees with Nordenškiöld that the climate and vegetation are favorable for cattle-raising, but the want of markets would prevent it from being profitable.

A portion of the Trans-Siberian Railway has been opened from Eketerinburg. It is to extend to Tuimen, 208 miles from the former place, and will there meet the great waterway of the country. The work of piercing the water-shed between the basins of the Obi and the Yenisei is nearly completed, so that communication between these rivers will soon be opened. It is also proposed to join the basins of the Petchora and the Obi by a railroad over one of the passes of the Ural mountains.

A report of the French consul at St. Petersburg gives the population of Turkistan, nomad and sedentary, as 2,355,000. The factories have greatly increased since the coming of the Russians, and now include twelve brandy-distilleries, five tobacco-manufactories, seven tanneries, and others. The commerce has doubled since 1866. The production of silk is an important industry in some parts. The sedentary population chiefly occupy the mountainous regions, raising wheat, rice, barley, millet, cotton, hemp, flax, and melons; and potatoes have been cultivated since the establishment of the Russian colonies. The nomads raise animals—goats, horses, camels, and horned cattle—and occupy the low lands.

The much-discussed question whether the Usboi ever formed a natural connection between the Caspian and Aral Seas, remains still undecided. Recent researches by A. Konischin tend to confirm the opinion that the Usboi, from the Ssarykamisch Lake to the Caspian, is not the ancient bed of the classic Oxus, but a result of the separation of the Aral from the Caspian, and the outflow of the salt water of the Aral and Ssarykamisch into the latter. The old bed of the Amu-Darya does not in reality appear between Bala-Ischem and the Ssarykamisch Lake so definitely as it is represented in the maps. The Usboi first appears in dis-

tinct form below the water-shed near Bala-Ischem. Above this lie a number of rows of kettle-like depressions bordered by high sand-hills. This region must have formed, at some time, a basin filled with water, half fresh, half salt, connected, at high water, with the former Bay of Aibugir, and receiving from the southeast the waters of the Amu-Darya. After the bay was separated from the Ssarykamisch Lake by the turning of the Amu, the whole basin was divided into the Tschetkou Lake in the south, and in the north the Chorawemisch Sea, until here, too, by means of evaporation, and probably also the elevation of the earth, the present condition of things was brought about, and the Amu-Darya was turned entirely to the Aral Sea. This turn in the channel of the Amu must have taken place within the limits of the present Chiwa-Oase, on the space between the Ssarykamisch and Aibugir border of the Usturt and the declivity of the plateau Dus-kyr, and on this very spot the old bed is distinctly recognizable. Now whether the western part of the Usboi—that belonging to the Caspian—was in part an arm of the sea, in part the outlet of the Ssarykamisch Lake, or only a channel for freshets, it could in no case have been the majestic Oxus of the ancients, who could only have regarded the Chowaresmisch Sea as the one into which it flowed.

This western part of the Usboi could not have been navigable, on account of its many waterfalls; neither have any traces of settlements been found on its banks. Kouschin's evidence establishes fully the impossibility of the Amu-Darya having flowed through the Usboi into the Caspian, for, in order to reach the Usboi from the north at Bala-Ischem, it would have had to make a circuit of 300 kilometres around the depression forming the Ssarykamisch Lake. But if this depression were to be filled it would form an artificial sea where one has disappeared through mighty geological agencies.

In July the Trans-Caspian Railway was opened as far as Merv. That part extending from Kizil-Arvat to Merv, 531 versts or 566 kilometres, was built in a little less than a year. The entire line will measure 1,065 kilometres, and will extend from the port of Mikhailovski, on the Caspian, where the bay has been deepened to admit the largest vessels, to Chardjui on the Oxus. A special line of steamers is to be established on the Oxus. Later the line is to be extended by Bokhara to Samarcand. The work is in charge of Gen. Annenkov, who describes in a letter the districts through which it is to pass. The line runs southeast for 243 miles, from Kizil-Arvat to Duchak, parallel with the Kopeth-Dagh mountain-chain, which forms the Persian frontier, and crosses the oasis Akhal. The most important station is Askabad, a little town only three years old, but already of some commercial importance. The region is for the most part level and sandy, sprinkled with villages

which were deserted, but since the Russian annexation have been repeopled. From Duchak the roads to Serakhs, Meshed, and Herat diverge, and the railway curves to the northeast, and strikes across the desert to Merv, which is on an oasis on the banks of the Murghab. The 118 miles from Merv to the Oxus is a sandy desert covered with a dense vegetation of "saxaul" (*Haloxylon ammodendron*), and other plants of the same family. This was the most difficult part of the line to construct; not so much on account of the drifting sand, as of the want of water, which was scarce and often brackish. The line crosses two important rivers, the Tejend and the Murghab, both of which lose themselves in the sand, and in winter are dry or very low; but in summer their volume is considerable and the water is drawn off in canals to long distances for irrigation. This railway is of great importance, politically as well as commercially, for it gives Russia an opportunity to bring a large force to the borders of Afghanistan without delay, in case of need, and to compete advantageously with India in the trade of Central Asia.

The cultivation of cotton promises to become an important industry in this part of Asia. The Central Asian Commercial Company has received a large tract from the Ameer of Bokhara on the Amu-Darya, near the Chadjui station of the Trans-Caspian Railway, and this they intend to devote to the raising of cotton. The company has permanent agencies at Merv, Askabad, Kutschan, and Meshed, and it has lately sent a trading-caravan into Thibet.

The English-Russian Boundary Commission began its work by surveying the northern line and marking it with pillars from the Persian boundary nearly to the Amu-Darya or Oxus, at Chodschat-Salih. The commission could not agree upon the merits of the conflicting claims to the district of Khamiab, and therefore the last 40 of the 560 kilometres of the line were left without the land-marks.

A noteworthy book of travel, published in Paris this year, is "Across Central Asia" ("A Traverse l'Asie Centrale"), by H. Moser, an account of his experiences in his last journey through that region in 1883-'84. He attributes to the Russian advances there the great improvements wrought in late years, and the safety with which travelers of all nationalities can now visit that part of Asia. Twenty-five years ago Arminius Vámbéry adopted the disguise of a dervish in order to travel through Central Asia, and even then was in frequent danger of his life; M. Moser himself in his first travels there in 1868-'69 found the state of the country far different from that of the present day; and he very naturally attributes the change to the civilizing influence of Russia. The principal value of his work lies in its ethnologic observations.

The following summary of the work of M. Prejevalski, the distinguished explorer of Central Asia, has appeared in European journals:

"The first journey of M. Prejevalski lasted three years (1871-'73). Making the best use he could of the small resources at his command, he remained two years in Thibet, and penetrated as far as the source of the Blue river. He was the first to explore the eastern part of Central Asia (11,000 versts' journey). The years 1874 and 1875 he devoted to the arrangement of the scientific results of his first journey, and to the preparations for a second. This time the explorer was well equipped, having laid out a sum of 24,000 rubles, granted him by the command of the late Emperor Alexander II, on the advice of Count Milutin, Minister of War. Six Cossacks were placed at his disposal. The expedition betook itself into Thian-Shan and to Tarim, but, being unable to advance, returned to Russia at the beginning of 1877, by way of Eastern Turkistan. Its scientific results were, however, of importance. The third journey began in 1878. The expedition was composed of twelve persons. The proposal to penetrate as far as Sadji in Thibet could not be carried out, owing to the want of food and means of transport. After having explored Lake Zaisan, and Thibet as far as Saïdam, M. Prejevalski was stopped at a distance of 250 versts from the capital of the country. The sources of the Hoang-Ho were explored in 1879. Lastly, in 1883, M. Prejevalski set out on his fourth journey in the same region, following a desert track toward the Hoang-Ho. The month of February, 1884, was passed among the Thibet mountains in completing collections in ornithology. Hunting provided the travelers with food, and they used also tea and small cakes. The roasted meal of the country, called *zamba*, took the place of bread. In May, the expedition advanced into southern Saïdam, the ruler of which wished to oppose its passage, but was compelled to give them a guide and some camels. Leaving the provisions under the charge of seven Cossacks, M. Prejevalski proceeded to the sources of the Hoang-Ho. Here this river is only from fifteen to twenty *sazhens* broad, but as it turns toward the southwest it attains an immense size. This stream is of great moment to the Chinese, who, to heighten its importance, have instituted annual sacrifices of great solemnity. It is noticeable that the country near the source of the Hoang-Ho is inhabited; and the herds of yaks are innumerable. From the source of the Hoang-Ho, M. Prejevalski turned southward to the source of the Blue river. After a march of 150 versts, the travelers encountered some Tungutes, who showed themselves very hostile. A few shots made them retreat, but it was found impossible to pass the Blue river, and M. Prejevalski was obliged to turn back. Two fresh attacks of the Tungutes did not prevent him from returning to the source of the Hoang-Ho, where one of the lakes that feed the river has received the name of 'Expedition Lake.' From this time the travelers advanced for many consecutive weeks, having continu-

ously to beat off the attacks of the Tungutes, who kept firing their old-fashioned muskets, but never with any effect. From southern Saidam, M. Prejevalski, with thirteen companions, set out for western Saidam. The poverty of the soil of this country makes it an unfit abode for any animal—even the camel. After traveling for 800 versts, the explorer reached the borders of an impracticable morass, covered by swarms of pheasants. In a spot called Gaz, they stopped for three months. From thence the travelers advanced once more 800 versts into western Thibet, where they discovered three new mountain-chains. On their return to Gaz, they set off through mountain-passes, for Loto, where they found a population of Turkish race, very friendly. The same kindly reception was accorded them in the western part of China, bordering on Eastern Turkistan. This is a very fine region, fertile, warm, and with no winter climate; yielding a crop twice a year (in February and July), and bearing fruits all the year round. Chinese, Mongols, Arabs, Bukhariotes, and Hindoos are all found there. On their further advance, they came once more on an absolute desert dotted with oases—the distance, however, between the first two being 900 versts. That of Cherchen contains also the ruins of a city. Near Cherchen there is a chain of mountains, hitherto unknown, which M. Prejevalski christened ‘Tsar Liberator.’ Rain fell without ceasing for twenty consecutive days. The oasis of Potam contains sixty thousand *deniatines* of fertile land. The traveler was the first to explore the Potam river, which rises in a small morass in a desert, and has a course of only 150 versts. Having crossed the Potam, M. Prejevalski passed the river Tarim, touched at the rich oasis of Oksu, traversed the Thian-Shan, and concluded his fourth journey by visiting Sekul.”

The following are some of the remarks in which the explorer sums up his references to Thibet: “Its climate is continental, with sudden changes from cold to hot, and *vice versa*. The heat sometimes reaches 65° C.; the mean summer temperature is 40° C. in the shade. In southern Thibet the climatic conditions are different: the summer temperature does not exceed 23° C., and the cold is moderate. In spite of this, the too great humidity of the country hinders vegetation, so that there is not even sufficient pastureage for cattle. In the west alone one finds a little grass, while trees and shrubs are wanting. In spite, however, of this poor vegetation, the fauna there is very abundant. One can count as many as fifteen species of mammalia and fifty-three species of birds. The animals, which are sheltered among the valleys of northern Thibet, are of very great size. The first place must be given to the herds of wild bulls (yaks), which are, however, not fierce; then there are antelopes, sheep, and wild asses; and bears, wolves, and foxes are also often to be met with. In the east, there are two rivers and some lakes, well enough stocked

with fish: but there is little variety in their species. The Mongol inhabitants, in their manners and customs, take after the savage nature of the country. They live in *yurts* made of felt.”

An expedition of two years’ duration in southern Mongolia by Messrs. Potanin, Skassi, and Beressowski was ended in October, 1886, by the arrival of the two former in Kiakhta. Beressowski remained behind to complete his collections. Describing the journey from Ssinin to Ssigu-ssjau, Potanin says he reached the Yellow river at the little village of Arku above Gui-dui, and crossed a mountain-pass 3,660 metres high. Reaching Gui-dui, he passed up the valley of the river Lantschshu, called Dunchozjau on Prejevalski’s map, to the plateau of Rtshandsa-tan, about 3,000 metres high, to the right of which can be seen the snow-covered mountains Amni-Dshakar, where Prejevalski stopped in 1880. The road leads from the plateau through the deep valley of the river Naryn-Dshanba to the broader valley of the Urunwu in which lies the town of Bou-nan. On the same river, thirteen kilometres above Bou-nan, is the Chinese cloister Urunwu. From this valley the plateau of Gaulschshatan is reached; it is as high as that of Rtshandsa-tan. Potanin at length arrived at the cloister of Labran, 3,000 metres high in the narrow valley of the Urunwu, having some hundreds of well-built houses, many of them two and three stories in height. It is the residence of the Göge Dshajau-Dshapassyn, who unites the temporal power with the spiritual. The valley of the Ndami, a little tributary of the Urunwu, leads to a third high plateau, to the pass Renú-kikà, on whose southern side winds the little river Ankur, a tributary of the Tao-chè, in Tangutan the Lurjutschju. From this plateau also may be seen a snow-capped mountain-range stretching along the side of the Tao-chè from west to east. At the Renú-kikà begin the dwellings of the Tungute tribe of the Dshoni, whose prince lives three days’ journey beyond in Dshoni on the Tao-chè. Through this valley, in which is a considerable waterfall near the village Jechu-tschoao, Potanin, after a journey of four days, reached Mintschshieu, whence he passed over to the mountains of Jali-ssan, the water-shed between the Tao-chè and the system of the Yang-tse-kiang. The ascent is short and easy, but the descent leads deep down to the little town of Tan-tschen in a very narrow valley. One kilometre distant is the residence of the Tungute prince, who is known among the Chinese as Matussy.

Below Tan-tschen the traveler came upon a great mountain-stream roaring through a narrow valley, between thickly wooded banks of chalk rock. So narrow is it that the road leads for a great part of its way over cornice-like projections, platforms built out like balconies, and unsteady, overhanging bridges. Three days’ journey led to the mouth of this river where it joins the Pei-tui, and a day’s journey

down that river lies the city of Ssi-gu-ssjau, surrounded by sharp-pointed and lofty mountain-peaks. Potanin began his return June 25, from the city of Gaotai in the north of the Koko-Nor, and crossed the Gobi Desert by a hitherto unknown route from south to north. He observed that the southeastern continuation of the Altai range consists of four parallel chains, of which one was explored in 1873-'79 by Pjewzow; the others have not been visited. Potanin reports that the expedition arrived at the Koko-Nor April 22, followed the course of the Chargi river upward, and in its upper basin crossed the route taken by Prejevalski in 1872. On the way through the mountain-region separating the system of the Yellow river from the plain of southern Mongolia, the mountain system of the Nan-Shan was seen to be more complicated than that part in the meridian of Lyahtshero. The latter consists of two mountain-chains, between which lies the valley of the Daitung-che river; while the former consists of three chains separated by two lengths of valley. In one the Daitung-che takes its course eastward, in the other the Jedsin flows westward and the Bardun eastward; they unite at the cloister Pabor-tassy in the meridian of Hantshen. The passes of the three chains were of nearly equal elevation, something more than 3,900 metres. The valleys are about 3,000 metres high, excepting two short stretches where they fall a little below that height. From the valley of the Daitung-che, inhabited by Tungutes of the Arig race, the route leads to the pass of Rdonssug, the highest of the three, and then down to the sources of the Little Rdonssug, a tributary of the Jedsin from the left. The upper course of the last-named river is bordered on both sides by a high plateau, beyond which in the north is the high range of Pabas Shan. At the little cloister of Pabor-tassy, situated at an elevation of 2,400 metres, on the Jedsin, the settlements of the Arig end, and a little farther westward begin those of the Shira-jéguren. From Pabor-tassy two roads lead to Hantshen; the one northeastward over the mountains and by way of the little town Nangotohen, the other up the stream to the Bardun. The explorers took the latter but were obliged by the exhaustion of the camels to turn to the pass Galdsin-daban, which they reached May 22. Passing down the Tashity, they reached a plain and thence up the Lagi to the pass of Dagen-dabau, on the northern side of which are the sources of the Charar-gol. From the upper reaches of this river extends a lofty plateau, furrowed by the deep valleys of brooks tributary to the Donssyr, which flows into the Jedsin. From this plateau, the way leads through the dry valley of the Bajan-gol to the Donssyr, which it reaches nine kilometres above the mountain town of Li-juan-in. Twenty-two kilometres distant is Shachi, in the plain on the great road from Hantshen to Ssutshen. The Jéguren are a people first

known in Europe through the reports of Potanin. They occupy the northern slopes of the mountain-range on the left of the Bardun. Their pastures begin on the left bank of the Jedsin below Pabor-tassy, and extend to the town of Kärne south of Ssutshen, being limited, therefore, to the northern valleys of the Nanshan between the meridians of Hantshen and Ssutshen. Surveys and astronomical observations were made by the travelers.

On Feb. 1, 1886, a new province was divided from the central province in Ceylon. It is called Uva, and includes the southern part of the old province. The capital is Badulla. A railroad is to be built to Haputale, and afterward extended to Badulla.

Capt. Réveillère having succeeded in passing the rapids of the Mekong at Prea-Patang with a small steamer, giving promise of the extension of navigation up the Mekong, the Colonial Council of Cochinchina has appropriated 8,000 piasters for a special examination of the rapids by Lieut. Fésigny, with a view to obviating the obstruction they offer to navigation.

On January 27 appeared in the "Journal Officiel," the decree of organization of the protectorate of Annam and Tonquin. This protectorate is looked upon as a distinct and independent service, having its own laws, its own budget, its own customs. It will not maintain any connection with the Government of the capital, except such as result from the nomination of the Resident-General and other high officials, and the allowance of a subsidy.

Europe.—The old project of the Volga-Don Canal, originally started by Peter the Great, has again been revived. The city of Rostov, on the lower Don, which would be greatly benefited in its trade by a water-way uniting its river and the Black Sea with the Volga and the region of the Caspian, has taken steps to have the route surveyed.

The project for a canal connecting the North and Baltic Seas bids fair at last to be carried out. It will start from the Elbe above Brunsbüttel, and end at the bay of Kiel. The cost of the canal is estimated at 156,000,000 marks, and the time required for constructing it at seven years. In order to make the canal useful for ships of war, it is proposed to make it 26 metres broad at the bottom, 60 metres on the surface, and 8·5 metres in depth. Its length will be about 93 kilometres.

Another undertaking, which has long been in contemplation, seems to have advanced a step toward completion by the formation of a society in Amsterdam for considering plans for draining the Zuyder Zee. A recent proposal which finds considerable favor is to connect the islands of Texel, Vlieland, Terschelling, and Ameland by dams, as Ameland is now connected with the mainland, and then to cut off the Zuyder from the North Sea by a dam with a sluice between Texel and Helder. By this means it is hoped to turn the sea into a

body of fresh water, which will afterward be gradually drained and laid dry. This plan would divide the expense among a large number of years.

The canal for draining Lake Copais, in Bœotia, was opened June 13. This ends an undertaking attempted even in ancient times, and will contribute to the settlement of the region, which has hitherto been hindered by the unhealthful exhalations of the lake.

Following are extracts from a paper read by A. Martel before the Paris Geographical Society regarding a district of France comparatively unknown :

"One finds it stated even now, in the best scientific books of the day upon geography, that Lozère is the poorest department of France, the most abandoned district of our country. But, if Lozère takes rank among the lowest of the departments with regard to total population, agriculture, commerce, and industries, she holds, on the other hand, a first place in regard to Nature's marvels and scientific curiosities. Forming a part of the great Causse limestones, which form the western slopes of the Cévennes between Mende and Lodève, so well described by Elisée and Onésime Reclus, Lozère possesses, as a matter of fact, in the gorges of the Tarn, one of the greatest curiosities of Europe—one may say of the whole world. For a distance of about sixty-two miles between Florac and Millau, the river Tarn runs between two limestone walls almost perfectly perpendicular, from 1,300 to 2,000 feet in height, red and yellow as the setting sun, broken into sharp points and shaped into formidable bastions. The stream flows at the bottom of a wide gorge from 3,200 to 6,500 feet high at its summit, where the sunlight enters perpendicularly, as down a shaft. Considering it with the feelings of grandeur and wonder that it produces on the traveler, there are only three places more impressive than the gorges of the Tarn: the Alps of the Tyrol, the Spanish slope of Mount Perdu in the valley of Arrasas, and the Great Cañon of the Colorado in Arizona. Nowhere else does one find such flame-colored and supernatural rocks. And yet, while France possesses such a treasure in the districts of Mende and Florac, people point to Lozère as a country cursed by Heaven and under the ban of civilization. Since 1834, Baron Taylor, MM. C. Nodier and A. de Cailleux, in their great work on ancient France, strove, without obtaining a hearing, against this great injustice. About forty years later, MM. Onésime Reclus and Lagrèse-Fossat returned to the charge without further success; they managed, however, to rouse the curiosity of the Club Alpin français, to which must be attributed, in the person of M. Lequeutre, the honor of having since 1879, by a widely extended publicity, brought about a true appreciation of the picturesque value of Lozère. In 1883 a true geographical discovery was effected in the district of the Causses—the discovery of

Montpellier-le-Vieux, about nine and a half miles east of Millau, in Aveyron, and consequently beyond the borders of Lozère, but only a few hours' journey from the gorges of the Tarn, and therefore in the same sphere of attraction for travelers. Montpellier-le-Vieux is nothing else but an immense ruin, a sort of Thebes or Palmyra, but a natural ruin made of rocks. Between the gorge of the Dourbie and the deep ravines of two of its tributaries, the mysterious city, suspended like the hanging-gardens of Babylon about 1,320 feet above the river, has been guarded against the inroads of the curious and the researches of geographers by its frowning ramparts, and, above all, by superstition. The inhabitants of the valleys dare not adventure into a chaos of rocks which they called the city of the devil; and when, three years ago, MM. de Barbeyrac and de Mallafosse penetrated it for the first time, their admiration was only equal to their wonder. Where the map of the 'Etat-major' indicates by a blank spot a smooth plateau, there are really five amphitheatres of different shapes, and from 330 to 410 feet in depth, surrounded by rocky circumvallations with broken gaps, and inclosing a forest of obelisks and pointed arches, towers of defense and embattled ramparts, streets, squares, amphitheatres—in a word, a giant Pompeii, covering nearly 300 acres. Beyond the ravines, a circle of detached forts, all rocky monoliths, perhaps 200 feet in height, form the exterior defense. M. A. Martel, in 1884 and 1885, explored with great minuteness this new possession of tourists and geographers. He has constructed a very exact plan of it, which makes it easy to understand the lay of the whole district and the situation of the remarkable points. A masterpiece of Nature such as this is beyond description. It is sufficient to say that one gets an idea of Montpellier-le-Vieux by imagining a combination of the forest of Fontainebleau, Swiss Saxony, and the cliffs of Causse. But the caprice of Nature is there exercised with a power two or three times as great as one sees in these three celebrated places."

A recent book on Spain by George Higgin, Mem. Inst. C. E., gives much interesting information on its industrial condition. The growth of population from 1860 to 1877 has been about 25 per cent. only of the rate for the preceding fourteen years; but the increase of population in towns has been very rapid. Bilbao, for instance, has increased 82·17 per cent., probably owing to its iron-mines; and Pontevedra has grown 195 per cent. The total population is now about 17,000,000. The import and export trade has increased about 250 per cent. during the past twenty years. The export of wine to France amounts to 130,181,427 gallons. Many miles of railroad have been built within the past ten years, mainly by Frenchmen, and new lines are projected. These and improvements in the wagon-roads have aided the development of mining

industries, but there is still an immense field for enterprise in mining and metal manufacturing industries.

Count L. dal Verme gives an account of an excursion to the new crater of Mount Etna, which made its appearance during the recent eruption. It has been named Monte Gemmellaro, in honor of the distinguished geologist of Catania. It lies 300 metres below Monte Nero, 1,500 metres above the sea-level, and may be approached without much risk from the side of Nicolosi. The cone appears to rise 140 metres above the old level, and has a diameter of about 200 and a depth of about 40 metres, showing at the bottom two openings three or four metres wide, ejecting a little vapor at short intervals, accompanied by a slight rumbling noise. There was a third of about ten metres in diameter. Its depth could not be determined, on account of the continuous stream of vapor rising from it. During the eruption Monte Gemmellaro ejected about 66,000,000 cubic metres of volcanic matter, covering a space of about five and a half square kilometres on the side of the mountain, and approaching close to the village of Nicolosi, the inhabitants of which suffered losses in their vineyards, but no lives were lost.

North America.—The opinion is rapidly spreading that the United States has in Alaska a valuable possession hitherto unappreciated, and one whose resources will repay development. It has been regarded as of value chiefly for its yield of furs; but it is now believed that the mineral wealth of the country will prove to be great. An expedition was sent out in 1885, in charge of Lieut. George M. Stoney, to explore that part of Alaska lying north of the Yukon. A fort, called Fort Cosmos, was built on the Putnam river, and many trips were made during the winter of 1885-'86 over regions hitherto unvisited by white men. The lowest temperature at the fort was 70° below zero. In July a party from the expedition reached the Arctic Ocean ten miles east of Point Barrow, by way of a large river supposed to be the Meade river of Lieut. Ray. They were for several days on the Colville river, and reached its head-waters. Large lakes were found scattered all through Arctic Alaska. Following is an extract from an account by Assistant-Engineer Lane:

On June 1 the breaking up of the ice in the river enabled all of the party to pass down to its mouth. The explorers gained many new facts of particular value to geographers. Prof. Baird, of the Smithsonian Institution, had been particularly anxious that the party should explore Jade mountain, or Greenstone mountain, as the natives call it, out of which they obtain the greenstone used in making hatchets and other instruments. Engineer Lane and a party visited the mountain. It is 200 miles above the Putnam river and is about 3,000 feet high. The greenstone, as it is called, is more correctly a serpentine, and is found in layers of considerable thickness. The Eskimo Indians of that region are polygamists. No valuable minerals were discovered. Coal was found in abundance on the Putnam river and of good quality. Gran-

ite exists in large quantities, and some *asbestus* was found. No gold or silver was found, and as the Indians had none in their possession and never mentioned those metals, the explorers came to the conclusion that it is doubtful whether they exist in large quantities in that part of Alaska.

Putnam river is about 400 miles long and half a mile wide, and is navigable for a distance of 350 miles, at which point rapids are encountered. It drains the large area of the Putnam valley, which is thirty miles wide. The volume of water that flows down is immense. The river is bordered by a range of mountains about 3,000 feet high, the highest peak of which is 4,000 feet high. There is a dense growth of spruce and birch along the banks. This stream is several hundred miles above the Yukon river, and flows west into Kotzebue Sound.

Noatoak river is 120 miles north of the Putnam, and separated from it by a range of mountains. It is shallow and rocky, and flows west. There is very little vegetation along its banks. It is about 400 miles long and flows into Kotzebue Sound.

South of the Putnam about three miles is Selewik Lake. It is twenty miles in diameter, and very deep. The Selewik river is 200 miles long, and flows west. It is divided into two branches and flows into the lake. North of the Noatoak river is a wide desert plain extending for 150 miles and interpolated with many large and small streams. It extends clear to the Arctic Ocean. The soil is very poor, and never thaws but to a depth of a few inches, and aside from possible deposits of gold and silver and the fur-trade, the country is not of any practical value to white men.

Another expedition to Alaska was sent out by the "New York Times," with Lieut. Frederick Schwatka as leader. Prof. William Libbey, of Princeton College, accompanied Lieut. Schwatka for the purpose of making scientific observations. There were twelve attendants, including some Indians. The objective point of the journey was Mount St. Elias, which it was proposed to ascend. The expedition was left at Icy Bay, directly south of the mountain, on July 17, and the exploration of the mountain-region began two days later. On July 24, the scaling-party, Lieut. Schwatka and Messrs. Wood and Carr, began the ascent. They reached an altitude of 7,200 feet above the level of the sea, but found that further progress was impossible, at least from the southern side. Three great peaks, from 8,000 to 12,000 feet high, were named Cleveland, Whitney, and Nichols, the last in honor of the commander of the vessel on which the party reached Alaska. A large river flowing into Icy Bay received the name of Jones river, in honor of the proprietor of the "Times," while the range of hills below was named for Prof. Paul Chaix, of the Geneva Geographical Society. Three immense glaciers received the names of Agassiz, Tyndall, and Guyot, and a large lake, lying eastward from Icy Bay, and filled with icebergs, was called Castina Lake, in honor of the President of the Italian Geographical Society. Much doubt has been thrown on the claim of Lieut. Schwatka to be the original explorer of this part of Alaska. A map issued by W. H. Dall in 1870 shows a river flowing into Icy Bay, but without any name. It also appears on one of the charts of the United States Hydrographic Sur-

vey issued early in 1886, and is said to be laid down on a British Admiralty chart of 1853. The fact seems to be that while such a river was known to flow into Icy Bay, it had never before been explored. Lieut. Schwatka described it as from a mile to a mile and a half wide at a distance of six or eight miles from its mouth. Its great volume led the explorers to believe that it must head far beyond the mountains, and break through them at Repartan Pass. As to the scientific results of the expedition, Prof. Libbey says he found much that was interesting, particularly in ethnology. He made special studies of the Yakutat Indians. He does not agree with the theory that the peculiar valleys known as cirques, or amphitheatres, are the result of volcanic action. Those on the side of Mount St. Elias have been regarded as evidence that it is an extinct volcano, half of whose crater has been carried away. He believes, on the contrary, that the amphitheatres are due to ice-erosion. The movement of the ice of the Agassiz Glacier he estimates at from eight to ten feet a day. Of a discovery at Sitka he says:

The Coast-Survey map of Kruzoif island, which lies off that town, gives three mountains at its end—the extinct volcano of Mount Edgecumbe and two others which are now unnamed, but which, I heard, have been named on an old Russian map. I camped by Mount Edgecumbe, and, climbing up its side, I made the discovery that it is a mere parasitic cone on the side of a much larger and more ancient volcano. No one has ever described the crater of the older volcano, which lies between Mount Edgecumbe and the other two mountains directly to the north of it. The remarkable feature about this crater is that it is five miles across in one direction and three in the other, making it the largest known crater in northern latitudes. It has a level floor from 1,500 to 2,000 feet below the upper edge of the rim, which is covered with beautiful forests, and contains a number of beautiful little lakes. In its center is a cone, which is evidently the monument of the volcano's last struggle for existence. That crater was the origin of all this part of Kruzoif island. The lava overflows, resulting in a formation like the Giant's Causeway, undoubtedly came from the old crater and formed the entire south end of the island. After the big volcano became extinct the smaller one was formed on the line of fracture on the other's southern slope. Two distinct types of volcanic action are represented here—one in which lava must have been very fluid and have run from the side of the old crater, the other a more recent overflow from the cone of Mount Edgecumbe. The latter volcano was the more violently eruptive of the two, threw out more ashes, and accumulated a cone 2,000 feet higher than the other, which gave rise to the now corrected idea that it was the original volcano.

According to measurements made by Capt. C. E. Dutton, of the United States Geological Survey, in July, the deepest inland water of the United States is Lake Crater, a small lake in Southwestern Oregon. Its shores are so steep that the surface of the water can be reached at only a few points. The depths measured were from 853 to 1,996 feet (260 to 608 metres), and it is believed that there are still greater depths. According to Wheeler, the lake lies at a height of 7,143 feet, or 2,177 metres.

The alleged discovery of the so-called Lake Glazier, beyond Itasca Lake and connected with it, as the real source of the Mississippi, by Capt. Glazier, is disputed; since the description of the location of the lake seems to correspond with that of a lake laid down on a map of the Government survey of 1875, and there called Elk Lake.

South America.—A journey to explore the upper tributaries of the Amazon, undertaken by Richard Payer, has been attended with success, and some gaps in the map of that region will be filled as the result of his researches. He explored the Ucayali and the Pachitea and its confluent. The cause of the long delay in the examination of the region of the Pachitea, he says, must be the savage character of the Cassivos, who have their dwellings along its banks. "Their horrible weapons," he says, "I had an opportunity to admire in a settlement where forty of them were stacked; they are made with great skill, and the finest woods are used. Of the other Indian tribes in the region, the Lorenzos and the Campas are most noteworthy. The latter made upon me an impression of the greatest harmlessness and childlikeness; everything aroused their surprise; and when I showed them our drawings of persons and landscapes they were overcome with astonishment."

He found two hot springs near the banks of the Pachitea, about eight or ten days' journey apart. The Sibivos, a tribe on the Ucayali, he describes as a frightful sight for a European. Their hands and faces are painted blue, their arms and legs bedecked with animals' teeth and glass-pebbles, and their bodies marked with arabesques, giving them a strange and diabolical appearance. Their speech is lively and wild, their behavior obtrusive, and very different from that of the Indians on the Parima.

The region of the upper Chubut, in Patagonia, was explored by M. Fontana, Governor of the territory of Chubut, in the winter of 1885-'86. He confirms the view of Muster, that the Patagonian Cordilleras do not form one unbroken chain, but are broken at several points by the valleys of rivers that flow into the Pacific. He made an excursion to the Gulf of St. George, but did not find there the mouth of the river of the same name, as laid down on the maps. The colony of Chubut was founded by emigrants from Wales.

Islands.—On a journey into the less known parts of New Guinea, between November, 1885, and January, 1886, Capt. J. Strachan explored the upper waters of the Baxter river, in a small steamer, but failed to ascertain whether the supposed connection between the Baxter and Fly rivers really exists. He and his companions believe the territory visited to be well adapted to the cultivation of all tropical products. Returning to the coast, they followed it eastward to the Gulf of Papua, and discovered five smaller rivers, navigable for from 10 to 30

miles. They made excursions into the adjacent country, and brought away specimens of woods and other products.

The Empress Augusta river, discovered by Dr. Teusch, was explored by Capt. Dallman in April for a distance of about 65 kilometres, and in July and August by Capt. von Schleinitz, who ascended it to a distance of 360 kilometres in a steamer, when the water became too shallow for its further progress. The long-boat went about 180 kilometres beyond; and it was judged that the river was navigable some 90 kilometres farther, but lack of fuel compelled a return. As far as the steamer went, the river flows through a plain, but for the next 50 kilometres above it has the character of a mountain-stream, cutting through a mass of gneiss, mica-slate, and quartz, but without rapids. Still farther up, its course again becomes more quiet. The discovery of this river, leading into the interior, and nearly to the limit of German territory, is of great importance, the more so as the plains on its borders are well adapted for grazing, and the soil is rich enough for the cultivation of rice, sugar-cane, and other important products.

According to the treaty of April 6, 1886, between Germany and Great Britain, giving the northern islands of the Solomon group to Germany, the imperial authority over those islands was formally proclaimed, Dec. 13, 1886, and they were united with the territory of the New Guinea Company, which thereby receives an addition of about 22,200 square kilometres, with about 80,000 inhabitants. The Solomon Isles are among the least known of the islands of the Pacific, and therefore offer a new field for explorers. Besides the Bismarck Archipelago, recognized as German territory by the preliminary agreement of May 17, 1885, Germany receives the islands of Bougainville, Choiseul, Isabel, Shortland, St. George's, Ramos, Gower, Carteret, Marqueen, Tasman, and Ongtong Java. New Georgia, Guadalcanar, Malaya, and San Christoval or Arossi, together with some smaller islands, remain under British authority. After the conclusion of the agreement, the English marine took possession of the Kermadec Islands, about half-way between New Zealand and the Tonga Isles.

E. Modigliani gives an interesting report of a journey in Nias, an island 30 miles from the west coast of Sumatra, a little north of the equator. The natives are apparently of Malayan or Indonesian stock, though they speak a language quite different from the Malay. They are fierce and treacherous, and given to head-hunting. When told that the explorer desired to get several skulls for scientific purposes, the Rajah of Bavovalanai remarked that it would be rather expensive, as an expedition would have to be sent to make a raid on some neighboring tribe, having no idea of skulls being obtained from any but living subjects.

According to a report of Com. Moore, of the English survey-ship "Rambler," a new island

was discovered in German territory by W. N. Allison, of the English steamship "Fei Lung." It lies at 1° 25' south latitude, and 143° 26' east longitude, between the Echiquier Islands and Durour island, and is two or three miles long and 100 to 150 feet high. He named it Allison island.

Names of Places.—The Council of the Royal Geographical Society have adopted the following rules, which are identical with those adopted for the Admiralty charts, for the spelling of such geographical names as are not, in the countries to which they belong, written in the Roman character:

1. No change will be made in the orthography of foreign names in countries which use Roman letters. Thus, Spanish, Portuguese, Dutch, etc., names will be spelled as by the respective nations.

2. No change will be made in the spelling of such names in languages which are not written in Roman characters as have become by long usage familiar to English readers.

3. The true sound of the word, as locally pronounced, will be taken as the basis of the spelling.

4. An approximation, however, to the sound is alone aimed at. A system which would attempt to represent the more delicate inflections of sound and accent would be so complicated as only to defeat itself.

5. The vowels are pronounced as in Italian and the consonants as in English.

6. One accent only is used—the acute—to denote the syllable on which stress is laid.

7. Every letter is pronounced. When two vowels come together, each one is sounded, though the result when spoken quickly is sometimes hardly to be distinguished from a single sound, as in *ai*, *au*, *ei*.

8. Indian names are accepted as spelled in Hunter's "Gazetteer."

These rules are applied to the letters severally, as follow:

A is pronounced as in *father*.

E has the sound of *eh*, or as *e* in *benefit*.

I as the English *e*; as *i* in *ravine*, or *ee* in *beet*.

Thus, *Fiji*, not to be spelled *Fecjee*; *Hindu*.

O as in *mote*.

U, long *oo*, as in *flute*; or approaching the sound of *oo* in *boot*.

All vowels are shortened in sound by doubling the following consonant. Doubling of a vowel is necessary only when there is a distinct repetition of the single sound, as *Avalia*, *Oosima*.

Ai has the sound of English *i*, as in *ice*.

Au of *ow*, as in *how*. Thus we spell, not *Foochw*, but *Fuchau*.

Ao has a sound slightly different from that of *au*, as in *Macao*.

Ei has the sound of the two Italian vowels, but is frequently slurred over, when it is hardly to be distinguished from *ey* in the English *they*. Examples, *Beruit*, *Beilul*.

B as English *b*.

C is always soft, but is so near the sound of *s* that it should be seldom used. Thus, were it not for generally recognized usage, *Celebes* would be written *Selles*.

Ch is always soft, as in *church*.

D is the English *d*.

F is the English *f*. *Ph* should not be used for the sound of *f*. Thus we should write, not *Haiphong*, but *Haifong*.

G is always hard. Soft *g* is given by *j*.

H is always pronounced when inserted.

J is the English *j*. *Dj* should never be put for this sound.

K is the English *k*. It should always be used for the hard *c*. Thus we should write, not *Corea*, but *Korea*.

Kh is the Oriental guttural, as in *khan*.

Gh is another guttural, as in the Turkish *dagh*, *ghazi*.
L, *M*, and *N* are as in English.

Ng has two separate sounds, the one hard, as in the English word *finger*, the other as in *singer*. As these two sounds are rarely employed in the same locality, no attempt is made to distinguish between them.

P is as in English.

Q should never be employed. *Qu* is given as *kw*, as *kwangtung*.

R, *S*, *T*, *V*, *W*, and *X*, are as in English.

Y is always a consonant, as in *yard*, and therefore should never be used as a terminal, but instead of it *i* or *e*. Thus we should write, not *mihindany*, but *mihindáñ*; not *kwaly*, but *kwale*.

Z is as the English *z*.

Accents should not generally be used; but where there is a very decided emphatic syllable or stress which affects the sound of the word, it should be marked by an acute accent.

GEORGIA. State Government.—The following were the State officers during the year: Governor, Henry D. McDaniel, succeeded by John B. Gordon, Democrats; Secretary of State, N. C. Barnett; Treasurer, R. U. Hardeman; Comptroller, William A. Wright; Attorney-General, Clifford Anderson; State School Commissioner, G. J. Orr; Commissioner of Agriculture, John T. Henderson; Railroad Commissioners, Alexander Irwin, C. Wallace, and L. N. Trammell. Supreme Court: Chief-Judge, James Jackson; Associate Justices, Martin J. Crawford and M. Blanford.

Finances.—The Treasurer presents the following exhibit of the finances of the State: Balance Oct. 1, 1885, \$484,190.73. Receipts for the year ending Sept. 30, 1886, \$4,220,130.33; disbursements during same period, \$4,453,393.—10, leaving balance, Oct. 1, 1886, \$250,927.96.

The provision made in the act, approved Dec. 23, 1884, for the payment of \$3,455,135 of principal of the public debt maturing in the years 1885 and 1886, has been carried into effect in a manner that has materially improved the credit of the State and largely reduced annual interest. The original contract provided for the delivery of \$3,042,000 of the issue, on May 1, 1886, interest to begin at that time. It also permitted the purchasers to demand an earlier delivery of any part of this amount, on tender of maturing bonds as cash at their par value, and payment of the premium, the State paying the difference in interest between the new and old bonds at maturity of the latter. Up to Oct. 1, 1886, date of the Treasurer's report, all of the matured bonds aforesaid had been presented and paid, except the amount of \$318,120, since which time a large portion of this amount has been paid.

"The time has arrived," says the Governor, in his message to the Legislature, "for carrying into effect paragraph 1, section 14, Article VII, of the Constitution, which provides that after payment of the 8-per-cent. bonds issued under the act of Feb. 19, 1873, the sum of \$100,000 shall be raised by taxation each year in addition to the sum required to pay the public expenses and interest on public debt, to be held as a

sinking-fund to pay off and retire the bonds of the State not yet matured, and for no other purpose whatever."

The entire cost of collection of taxes, and loss from failure to collect, amount to a fraction over 6 per cent. of the levy. The Governor recommends the creation of a system of savings-banks.

Penitentiary.—The number of convicts on Oct. 20, 1884, was 1,368; received from jails since, 777, making a total of 2,145. Of this number 493 have been discharged, 57 have escaped, and 68 died; total 618, leaving on the rolls of the Penitentiary, Oct. 1, 1886, 1,527. This makes an increase in the number of convicts during the past two years of 159; but this increase all occurred previous to July 1, 1885, as the rolls on that date contained 1,533—a larger number by six than were in the Penitentiary Oct. 1, 1886. "It appears," says the Governor, "that nearly the entire number of convicts are now engaged in mining coal, making coke, building railroads, and making briek. Experience has demonstrated that convicts can not always be profitably employed at farming, and it is fortunate that the revival of other industries, especially railroad-building, has furnished other employment for them."

Lunatic Asylum.—The report of the trustees and officers of the Lunatic Asylum shows that on Oct. 1, 1885, there were in the institution 1,237 patients. Of these, 892 were white and 345 colored. There have been received during the year ending Oct. 1, 1886, 274 white and 117 colored, making a total of 391. Discharged, removed, returned to counties, and died during the year, white and colored, 390—leaving in the asylum Oct. 1, 1886, 1,238. The average number in treatment during the year was 1,237; whole number receiving treatment, 1,628. Daily cost of each patient, 33½ cents.

The completion of extensive improvements and additions to the buildings, together with the return to the counties and relatives of a large number of harmless imbeciles (as provided by act of Feb. 28, 1884), has to a large degree relieved the crowded condition of the asylum.

Academy for the Blind.—The report of the Academy for the Blind shows an attendance on Sept. 30, 1885, of 82, of whom 71 were white and 11 colored. Received since, 19 white and 1 colored. Discharged during the year 11. On the roll, Oct. 29, 1886, 91—a larger number of pupils to be provided for at any time in the history of the academy.

Deaf and Dumb.—Ninety-one pupils were maintained and instructed during the past year. Of these, 34 were white males, 27 were white females—a total of 61 whites; and 19 were colored males and 11 colored females, making 30 colored. The entire expenditure for maintenance and instruction was \$16,286.92. The school-building, for the erection of which

\$15,000 has been appropriated, is approaching completion.

Education.—The enrollment of white pupils in 1885 was 190,349; colored, 119,248. The average attendance in 1885 was 209,184, which was an increase over the preceding year of 14,149. The amount raised by the State for common-school purposes in 1885 was \$506,328.08, which was in excess of the amount raised in 1882, \$40,519.73. There was appropriated to schools in 1885 by cities and counties, under local laws, \$209,463.49, so that the entire amount available for school purposes that year was \$715,791.57. This gives an average per capita on enrollment of \$1.407, and on average attendance, \$3.421. The total cost of operating the system in 1885 was \$28,011.13, which was only 5·53 per cent. of the entire State appropriation, leaving 94·47 per cent. paid to teachers.

The report of the Trustees of the State University shows that there was, during the past collegiate year, the following number of students in each of the branches:

Franklin College.....	145
State College of Agriculture and Mechanic Arts.....	47
Post-graduate.....	1
Law department.....	11
Total number at Athens.....	204
In medical department at Augusta.....	139
In North Georgia Agricultural College.....	139
In Middle Georgia Military and Agricultural College	407
In South Georgia Agricultural College.....	85

Total in all the departments of the university system, 965. This does not include Cuthbert. The Legislature provided, in the act of Oct. 13, 1885, for the establishment of a technological school as a branch of the State University.

Political.—The Democratic State Convention was held at Atlanta July 28. John B. Gordon was nominated for Governor by a vote of 252 to 70 for A. O. Bacon. The following were renominated: For Secretary of State, N. C. Barnett; Treasurer, R. U. Hardeman; Comptroller-General, W. A. Wright; Attorney-General, Clifford Anderson. There was no Republican ticket in the field.

The following is the result of the election on October 6: Total vote, 116,298; for Governor, Gordon, 101,159; Secretary of State, Barnett, 115,501; Treasurer, Hardeman, 105,-187; Comptroller-General, Wright, 106,797; Attorney-General, Anderson, 114,158.

The last General Assembly passed two acts proposing amendments to the Constitution, and providing for submitting them to the people. The first was an act to amend the Constitution by striking therefrom paragraph 15, section 7, Article III, which provides that all special or local bills shall originate in the House of Representatives, and prescribes the manner of introduction and consideration of such bills. The other relates to all the objects for which the Legislature may levy taxes, and is an act to amend the last sentence of Article VII, section 1, paragraph 1, of the Constitution of 1877, by adding the following words, "And to make suit-

able provision for such ex-Confederate soldiers as may have been permanently injured in such service," so that said sentence shall read as follows: "To supply the soldiers who have lost a limb or limbs in the military service of the Confederate States with suitable artificial limbs during life, and to make suitable provision for such Confederate soldiers as may have been permanently injured in such service." These amendments were ratified at the October election.

On November 2, ten Democratic Congressmen were elected.

The Legislature, almost unanimously Democratic, met on November 3, and held a session of fifty days, adjourning on December 22 to the first Wednesday of July, 1887. The legislation was mostly local and special.

GERMAN EVANGELICAL CHURCH. According to the triennial report of the President of the Synod, which was made at its meeting in August, this body has under its care 675 churches, with more than 40,000 families and 125,000 "confirmed" members. The rolls showed an increase of 127 ministers and 60 churches in three years. The contributions of the churches in 1885 had been, for home missions, \$5,796; for foreign missions, \$8,079; for synodical and church purposes, \$41,882; for the American Bible Society, \$460. Four ordained missionaries were employed, under the direction of the Missionary Committee, in British India. Five periodicals were published under the direction of the Synod, in the general interests of the Church, of missions, and of Sunday-schools, and a sixth was projected—all in the German language. The payments from the Widows' and Orphans' Fund had averaged \$100 a year to each of the families or widows its beneficiaries.

The Synod of the German Evangelical Church in North America met in Buffalo, N. Y., in August, and was composed of 63 ministers and 39 laymen as active members. The Rev. I. Zimmerman, of Burlington, Iowa, presided. A new division of the Synod was made into twelve districts, instead of the eight districts into which it was formerly divided, and these districts are to be called by the names of the States in which they are situated, instead of by numbers. A declaration was adopted disapproving the raising of church funds by means of picnics, balls, and other worldly amusements. The privileges of the Widows' and Orphans' and of the Invalids' Fund were extended to the Evangelical Teachers' Association. An offer made by Pastor Fritz von Schluemback, to present to the Synod the buildings and grounds of a mission college in Texas, was accepted, on condition that the property be transferred free of debt. A proposition from Sternenhaus College, in Berlin, Germany, to receive and instruct gratuitously ten students for the ministry, to be sent to the United States in the service of the churches of the Synod, was accepted, and a gift of \$200 a year was voted to the college.

Rules and regulations were adopted for the better government of the theological seminaries at Eden, Mo., and Elmhurst, Ill. The Board of Education was authorized to take steps for increasing the libraries of the educational institutions of the Synod. A desire expressed by a number of members to have the Catechism translated into the English language was not granted.

GERMANY, an empire in Central Europe. The control of the military and international affairs is vested in the Emperor, who has the right to declare war for defensive purposes, but must have the consent of the Bundesrath to make war when it is not purely defensive. This body, containing 62 members, represents the confederated states, and shares the legislative authority with the Reichstag or German Parliament, composed of 397 delegates, who are elected by universal suffrage. The kingdom of Prussia is represented in the Bundesrath by 17 and in the Reichstag by 236 members; the kingdom of Bavaria by 6 and 48, respectively; the kingdom of Württemberg by 4 and 17; the kingdom of Saxony by 4 and 23; the grand-duchy of Baden by 3 and 14; that of Mecklenburg-Schwerin by 2 and 6; of Hesse, 3 and 9; of Oldenburg, 1 and 3; of Saxe-Weimar, 1 and 3; of Mecklenburg-Strelitz, 1 and 1; the Duchy of Brunswick by 2 and 3, respectively; the Duchies of Saxe-Meiningen, Anhalt, and Saxe-Coburg-Gotha each by 1 and 2 members, respectively; the free town of Hamburg by 1 member in the Bundesrath and 3 members in the Reichstag; the Duchy of Saxe-Altenburg, the principalities of Waldeck, Lippe, Schwarzburg-Rudolstadt, Schwarzburg-Sondershausen, Reuss-Schleiz, Schaumburg-Lippe, and Reuss-Greiz, and the free towns of Bremen and Lübeck by 1 member in the Bundesrath and 1 deputy in the Reichstag each. The Reichsland of Elsass-Lothringen is represented in the Bundesrath by 4 commissioners, and in the Parliament by 15 deputies. The total number of electors to the Reichstag in 1884 was 9,383,074, or 20 per cent. of the population, of whom 5,811,973 voted. The Emperor has the right to prorogue the Reichstag, but not for longer than sixty days, and to dissolve it, but new elections must be held within sixty days, and the new Reichstag must meet within ninety days of the dissolution. All laws of the empire must have the votes of a majority in the Bundesrath and in the Reichstag, and the assent of the Emperor countersigned by his Chancellor. The Chancellor of the Empire acts as President of the Bundesrath, while the Reichstag elects its Speaker. The ministers of the Imperial Government, who are not responsible to the Reichstag, and act independently of each other, but under the supervision of the Chancellor, are as follow: Minister of Foreign Affairs, Count Herbert von Bismarck; Minister of the Interior and Representative of the Chancellor, Herr von Bötticher; Chief of the Imperial Admiralty, General von Caprivi;

Minister of Justice, Dr. von Schelling; Secretary of the Imperial Treasury, Herr von Burghard; Chief of the Post-Office, Dr. Stephan. The Chancellor of the Empire is Prince Otto von Bismarck-Schönhausen, born April 1, 1815, who became Prussian Minister for Foreign Affairs, and Chief of the Council of Ministers in 1862, Chancellor of the North-German Confederation in 1867, and Chancellor of the Empire in 1871.

Area and Population.—The area of the German Empire is 212,028 square miles. The population of the several states according to the preliminary results of the census of Dec. 1, 1885, with the increase or diminution since 1880, is shown in the following table:

STATES.	Square kilometres.	Population.	Increase or decrease.	Per- cent- age.
Prussia.....	348,830·67	28,318,833	1,084,722	3·79
Bavaria.....	75,559·71	5,416,180	181,402	2·49
Saxony.....	14,992·94	8,179,168	206,363	6·94
Württemberg.....	19,503·69	1,995,168	24,050	1·22
Baden.....	15,081·13	1,600,839	30,585	1·94
Hesse.....	7,051·98	956,272	19,932	2·13
Mecklenburg-Schwe- rin.....	13,308·77	575,140	-1,915	-0·33
Saxe-Weimar.....	8,594·66	813,946	4,369	1·41
Mecklenburg-Strelitz.....	2,929·50	98,371	-1,598	-1·98
Oldenburg.....	6,422·52	841,525	4,047	1·20
Brunswick.....	8,690·48	872,388	28,021	6·59
Saxe-Meiningen.....	2,465·45	214,697	7,622	3·63
Saxe-Altenburg.....	1,323·75	161,460	6,424	4·14
Saxe-Coburg-Gotha.....	1,968·05	198,529	4,113	2·11
Anhalt.....	2,347·35	247,638	15,011	6·45
Schwarzburg-Rudol- stadt.....	940·42	88,836	8,540	4·28
Schwarzburg-Son- dershausen.....	862·11	73,606	2,499	3·51
Waldeck.....	1,121·00	56,565	43	0·08
Reuse (elder line).....	316·39	55,904	5,122	10·00
Reuse (cadet line).....	825·67	112,118	10,758	10·65
Schaumburg-Lippe.....	839·71	87,204	1,830	5·17
Lippe.....	1,222·00	128,250	3,004	2·50
Lübeck.....	297·70	67,658	4,087	6·48
Bremen.....	255·56	166,892	9,669	6·17
Hamburg.....	409·78	518,620	64,751	14·26
Elsass-Lothringen.....	14,509·42	1,564,354	-2,316	-0·15

The empire..... 540,598·56 46,844,926 1,610,865 3·56

The number of births in 1883 was 1,749,874; of deaths, 1,256,177; of marriages, 352,999; the excess of births over deaths, 493,697. In 1884 there were 362,596 marriages, 1,793,942 births, and 1,271,859 deaths, 68,359 of the births and deaths being still-born; natural increase of population, 522,083. The number of emigrants in 1884 was 143,586, of whom 139,339 went to the United States, 728 to Canada, 1,253 to Brazil, 1,276 to other South American countries, 230 to Africa, 666 to Australia, and 94 to other countries. The emigrants comprised 81,089 males and 62,497 females. The number of families was 23,093, including 85,813 persons, the remainder of the emigrants being single persons. Of the total number of emigrants 93,622 came from Prussia, 14,856 from Bavaria, 7,797 from Württemberg, 4,636 from Saxony, 4,381 from Baden, 4,013 from Mecklenburg-Schwerin, 3,175 from Hesse, 2,504 from Hamburg, 1,958 from Oldenburg, 1,146 from Bremen, and 750 from Elsass-Lothringen. In 1884 there were 1,253 German-born citizens

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of other countries who resumed German naturalization, and 3,841 foreigners naturalized, of whom 334 were of American birth. The number of emigrants in 1884 was 28,395, of whom 23,200 went to the United States.

Commerce and Industry.—The total value of imports in 1884 was 3,284,928,000 marks; of exports, 3,269,401,000 marks. The imports of specie and bullion, included in the above, were 24,125,000 marks, the exports, 64,462 marks. Among the leading imports were wool, of the value of 221,899,000 marks; cotton, 202,448,000 marks; silk, 139,225,000 marks; coffee, 122,219,000 marks; wheat, 113,931,000 marks; rye, 113,464,000 marks; swine, 75,921,000 marks; petroleum, 69,382,000 marks; horses, 63,929,000 marks; barley, 63,372,000 marks; woollen yarn, 57,898,000 marks; oats, 43,237,000 marks. Among the chief exports were sugar, of the value of 184,258,000 marks; unprinted cotton goods, 157,519,000 marks; mixed silk and cotton tissues, 123,126,000 marks; fine leather goods, 96,308,000 marks; coal and coke, 70,673,000 marks; coarse cotton goods, 46,892,000 marks; aniline dyes, 36,167,000 marks.

The foreign commerce was divided among the principal commercial nations in 1884 as follows, the values being given in marks:

COUNTRIES.	Imports from—	Exports to—
German free ports.....	556,534,000	786,590,000
Austria-Hungary.....	434,921,000	937,133,000
Great Britain.....	507,450,000	514,306,000
Russia.....	413,391,000	169,361,000
Netherlands.....	242,442,000	229,779,000
France.....	244,312,000	286,150,000
Belgium.....	298,195,000	162,766,000
Switzerland.....	154,599,000	191,558,000
North America.....	125,370,000	150,210,000
Central and South America.....	78,290,000	48,301,000
Italy.....	88,754,000	91,910,000
Norway and Sweden.....	31,420,000	72,925,000
Denmark.....	24,234,000	62,145,000

The product of pig-iron in 1883 was 3,419,635 tons, against 3,380,806 tons produced in 1882, and 2,914,099 tons in 1881. The number of furnaces in blast was 258.

Agriculture.—Of the total area of Germany only 6 per cent. is classed as unproductive. The area under cultivation in 1883 was 64,990,561 acres; grass and pasture lands, 27,033,122 acres; woods and forests, 34,334,512 acres; all other lands, 7,064,948 acres. The area under grain-crops was 33,644,092 acres, producing 27,959,560 cwts.; under potatoes, 7,178,475 acres; under sugar-beet, 347,882 acres; under grass, 14,565,417 acres. Of the beet-crop, 178,360,000 cwts., one half was manufactured into sugar, yielding 18,900,000 cwts. Of raw sugar and molasses, there were 55,408 acres devoted to the cultivation of tobacco, producing 766,360 cwts. The crop of hops is about 230,000 cwts. annually one third of which is exported. The number of farms in 1882 was 5,276 344, supporting a population of 18,840,818. Of the total number of farms 2,323,316 were less than one hectare, or 2·47 acres, in

extent, while the number exceeding 100 hectares, or 247 acres, was 24,991. The total value of the live-stock of Germany in January, 1883, was reckoned at 5,944,511,000 marks. There were 3,522,316 horses, 15,785,322 cattle, 19,185,362 sheep, 9,205,791 hogs, and 2,639,994 goats. In South Germany the forests cover from 30 to 38 per cent. of the surface, and in parts of Prussia 20 per cent.

The quantities and values of the leading mineral products of Germany in 1884 were as follow:

MINERALS.	Tons.	Marks.
Coal.....	57,109,326	293,584,000
Lignite.....	14,840,575	89,253,000
Iron-ore.....	8,866,941	86,774,000
Zinc-ore.....	631,421	8,278,000
Lead-ore.....	159,109	15,699,000
Copper-ore.....	592,321	18,147,000
Silver and gold-ore.....	23,346	8,835,000
Pyrates.....	150,107	1,297,000
Mineral salts.....	1,313,994	12,599,000
Other salts.....	684,361	80,676,000

The production of pig-iron in 1883 was 3,583,315 tons, valued at 171,706,000 marks. The number of furnaces in blast was 258.

Education.—Elementary education is gratuitous and compulsory throughout Germany. In the elementary schools there are 157 pupils to every 1,000 inhabitants. Of the army recruits in 1884 only 1·27 per cent. could neither read nor write, and except in East and West Prussia and Posen, where the proportion ranged from 6·58 to 8·89 per cent., less than 1 per cent. There were in 1883, besides the elementary schools, the normal schools, and the gymnasia, 9 technical high-schools, with 4,129 students, 994 trade-schools, and many institutes for special studies. The statistics of the 21 universities of Germany for 1885 are given in the following table:

UNIVERSITIES.	Professors and teachers.	Theology.	Juris prudentia.	Medicine.	Philoso- phy.	Total.
Berlin.....	278	600	987	1,072	1,856	4,465
Bonn.....	137	200	808	311	577	1,91
Breslau.....	128	382	190	897	503	1,422
Erlangen.....	50	402	103	219	87	811
Freiburg.....	73	85	268	474	822	1,144
Giesen.....	53	105	182	159	186	589
Göttingen.....	117	199	179	204	495	1,017
Grefswald.....	73	827	70	457	148	1,002
Halde.....	108	598	118	816	568	1,600
Heidelberg.....	101	65	302	265	325	957
Jena.....	81	164	79	204	234	631
Kiel.....	71	62	40	227	159	487
Königsberg.....	96	281	111	227	278	871
Leipsic.....	175	639	610	662	1,104	8,075
Marburg.....	70	176	74	247	349	540
Munich.....	152	119	1,006	1,129	571	2,825
Münster.....	42	235	—	—	174	429
Rostock.....	39	58	46	52	103	290
Strasburg.....	99	77	171	222	830	800
Tübingen.....	91	592	389	242	199	1,422
Würzburg.....	68	203	145	784	159	1,291

Finances.—The imperial revenue and expenditure for the year ending March 31, 1883 and 1884, and the budget estimates for 1884–85, 1885–86, and 1886–87 are as follow:

YEAR.	Revenue.	Expenditure.
	Marks.	Marks.
1882-'83.....	602,073,078	604,396,186
1883-'84.....	566,965,213	587,251,758
1884-'85.....	594,328,090	610,355,000
1885-'86.....	611,980,672	611,980,672
1886-'87.....	705,882,344	705,882,344

Of the estimated total revenue for the year ending March 31, 1887, 391,601,670 marks are derived from the customs duties and the branches of internal-revenue duties that are reserved to the Imperial Government, 30,387,000 marks from stamps, 28,572,606 marks from posts and telegraphs, 17,847,400 marks from railroads, 28,541,588 marks from the invalid and other invested funds, 11,262,069 marks from the Imperial Bank, the printing - office, and various departments, 53,659,317 marks from extraordinary sources, and 144,010,594 marks from the matricular contributions of the states. Of the total expenditure, 345,231,704 marks are assigned to the army, 37,398,928 marks to the navy, 155,534,666 marks to the service of the treasury, 18,302,500 marks to interest on the debt, 26,961,588 marks to the administration of the invalid fund, 21,850,075 marks to general pensions, 82,203,177 marks to extraordinary expenditures, and the remainder to the diplomatic service, the home office, etc.

The imperial debt on Oct. 1, 1886, amounted to 460,000,000 marks, bearing interest at 4 per cent., besides the unfunded debt, represented by treasury bills, which amounted in 1885 to 141,000,000 marks. The debt is offset by the imperial funds for invalid pensions, fortress construction, and the Parliament building, and the war emergency treasure, which amount to 698,280,000 marks.

The Army.—By the Constitution of April 16, 1871, every German is liable to military service, and no substitution is allowed. All who are capable of bearing arms are enrolled in the standing army for seven years, three in the line and four in the reserve, and then for five years in the Landwehr. The number called into actual service each year has been twice fixed for the period of seven years by the adoption of a military budget for that period by the Reichstag. The Government has aimed to fix the strength of the standing army at 1 per cent. of the population. The strength of the standing army in 1886-'87 is 18,150 officers and 427,274 men, with 81,773 horses and 1,874 guns. There are 161 regiments of infantry, numbering 279,138 men; 20 battalions of Jägers, making 11,056 men; and 4,776 depot troops for 275 battalions of Landwehr; making 294,970 infantry, besides 10,274 officers. The 93 regiments of cavalry number 2,358 officers and 64,589 men; 37 regiments of field-artillery, 1,801 officers, and 34,817 men; 14 regiments and 3 battalions of fortress-artillery, 729 officers and 16,349 men; 19 battalions of engineers, with 1 regiment and 1 company of railway troops, 421 officers and 10,849 men; 18 battalions of train, 200 officers and 4,825 men; the staff,

2,053 officers and 59 men; special services, 314 officers and 816 men. These figures are exclusive of 1,686 surgeons, 737 paymasters, 619 veterinary surgeons, 737 armorers, and 737 saddlers. The annual recruit for the period 1881-'88 is about 160,000 men, not including 5,000 who are taken into the army under special conditions as one - year volunteers, and 5,000 one-year volunteers who enter the marines. The war strength of the regular army is 35,400 officers, 1,500,000 men, 312,000 horses, and 2,500 guns. The Landsturm, consisting of all who have passed through the service under the age of forty-two, and the one-year volunteers, who are not included in the above enumeration raises the war-strength of the army to 2,650,000 men trained to arms, which number could be increased to 5,670,000 by calling out all classes capable of bearing arms. The strength of an ordinary battalion is 544 men, which is raised to 1,002 by calling out the reserves. Three battalions of infantry form a regiment; two regiments a brigade; and two brigades a division, to which four squadrons of cavalry, four batteries of artillery, each of 6 guns, and a battalion of pioneers or riflemen are attached. There are 17 army corps, capable of separate mobilization, each consisting of two divisions of infantry, a cavalry division of 4 regiments, 2 batteries of horse-artillery, and a reserve of 6 field-batteries and 1 mounted battery of artillery, with an extra battalion of pioneers and a battalion of train. The infantry is being rapidly provided with a form of repeating rifle into which the Mauser rifle is converted by changing the breech. These converted Mausers hold ten cartridges in their magazines, which are inserted in the stock. In the autumn of 1886 the four army corps of the western frontier provinces were armed with the improved weapon.

On the opening of the Reichstag, on Nov. 26, 1886, the Government asked for a new septennial budget for the period beginning with April, 1887, though the septennate will not expire till March 31, 1888. The measure was declared to be urgent. In view of the political situation the Emperor considered it necessary for the security of the empire to have it passed before Christmas. The ministers pointed out that the peace effective of the French army is now greater than that of Germany. The bill fixed the peace effective till 1894 at 468,409 men, exclusive of single-year volunteers, the infantry to consist of 534 battalions, the cavalry of 465 squadrons, the field-artillery of 364 batteries, the fortress-artillery of 131 batteries, the engineers of 118 battalions, and the train of 118 battalions. The Liberal factions, as on previous occasions, objected to rendering the army independent of parliamentary grants for so long a period. They were joined by the Center party, who constituted with them a decided majority. The Opposition asked the Chancellor to explain by what financial means he proposed to support so large an addition to

the imperial expenditure, unless he intended to force the Reichstag to accept a tobacco monopoly or other fiscal projects that had been condemned. They offered to vote the supplies that were demanded for a period of three years. Prince Bismarck rejected the compromise, and said that the Emperor was charged with the function of maintaining the army, and might constitutionally demand that the establishment should be fixed permanently. He intimated that, like Strafford, he would willingly lose his head in so loyal a purpose as maintaining the principle that the German army was the army of the Emperor, and not the army of Parliament. Windthorst, the leader of the Opposition, retorted that Bismarck was identified with the empire in so many ways that he imagined his own opinions to be binding laws in imperial matters. After many days of excited discussion, the bill in the form in which it was presented was rejected. The Emperor thereupon dissolved the Reichstag, and ordered new elections for Jan. 28, 1887.

The Navy.—The German navy consists of 96 vessels, with 554 guns. Of the vessels, 27 are ironclads, and 84 are steamers. There are 7 ironclad frigates and one under construction, 6 ironclad corvettes, and 14 ironclad gunboats for coast - defense, including two with deck-armor only. There were besides 35 large and small torpedo-boats in 1885; 70 more were authorized, at a cost of about \$4,500,000, in 1884, and the number is ultimately to be increased to 150. Germany has spent about \$55,000,000 on naval armaments and arsenals since the French War. There are two naval ports, Kiel and Dantzig, on the Baltic, and one, Wilhelmshaven, on the North Sea. The latter is constructed of granite, with five basins, and dry-docks for ironclads.

The Session of the Reichstag.—The Center party placed itself in direct antagonism with the Chancellor from the opening of the session of 1885-'86. The regulations for the exclusion of the Jesuit order and the restriction of Catholic missions in the German protectorates, drew forth the assertion of Windthorst that Germany was subject to a dictatorship, against which the Reichstag and the Landtags were powerless. The government of King Friedrich Wilhelm IV, he said, is now pronounced to have been misgovernment, and perhaps history will record the same verdict with regard to the government of Prince Bismarck. On Dec. 9, 1885, a pension law providing for the support of retired imperial officials was passed. The Centralists, German Liberalists, and Social-Democrats united in condemning the expulsion of the Poles, and on Jan. 9, 1886, carried a vote of censure over the votes of the Conservative and National - Liberal supporters of the Government. Herr Windthorst had withdrawn his previous interpellation after drawing from Prince Bismarck a particularistic avowal of the sovereign rights of Prussia. The members of the Bundesrat ab-

sented themselves from the Reichstag during the debate.

The construction of a canal to connect the North Sea and the Baltic was authorized by the Chamber. Prussia is to raise 30,000,000 marks toward the cost, besides three fifths of the remainder, estimated at 126,000,000 marks. Canals to connect the Ems and the Rhine and the Spree and the Oder, were also authorized.

A bill, brought forward by Herr Reichenberger, restoring the right of appeal in criminal cases, was passed on March 15, although the representatives of the state governments objected.

The spirit monopoly, which came up for discussion on March 4, found no support from any quarter of the House. The Minister of Finance defended it as the only means of overcoming the deficit and of relieving the states, especially Prussia, so as to permit reforms in local taxation. The Conservatives proposed radical amendments. The Center opposed the measure because it would strengthen the power of the Government to influence elections. The Liberalists characterized it as a scheme to benefit the 3,000 aristocratic land-owners of the northeast by paying higher prices for potatoes. The National Liberals objected to the intrusion of the state in the domain of private industry, and to the multiplication of officials, but proposed, as an alternative, a tax on the consumption of liquor, in addition to the distillery-tax. The Social-Democrats contended that the effect of the monopoly would be to make spirits dearer, but not to diminish inebriety. The bill was referred to a committee, which by a three-fourths majority rejected the project. The ministry calculated that the Government would derive a revenue of 300,000,000 marks from the monopoly. It was not proposed that the Government should undertake the manufacture of spirits. The retail dealers also were not to be immediately controlled by the imperial authorities, but appointed by the state governments.

One important purpose of the monopoly was to improve the low standard of German spirits, and prevent the use of injurious and adulterated liquors; also to control the consumption in districts where drunkenness is prevalent. Prince Bismarck, during the debate in the Chamber, assumed a menacing tone toward the Reichstag. He said that he himself had no thought of a *coup d'état*, but that the Reichstag showed as little attention to the needs of the nation as had the Federal Diet in Frankfort, and, since that assembly, though founded on solemn treaties, had been abolished, the German princes might prepare the same fate for the Reichstag. The bill was lost on March 27, only 3 voting in its favor, to 181 against it. A spirit-tax project was already being worked out in the Bundesrat. This bill, after a long and spirited discussion, was rejected in the last days of the session, chiefly on account of the advantages that it extended to the wealthy potato-distillers owning the great estates in the east.

A sugar-tax was likewise rejected. A bill proposed by Count Udo Stalberg retains the beet-root duty of 1·60 marks, and reduces the sugar bounty to 17·40 marks, and, after the expiration of a year, to 16·40 marks.

A bill was passed to indemnify prisoners wrongfully sentenced for the time of their imprisonment, which did not satisfy Herr Hartmann and the Socialist Kayser, who proposed that all the damage sustained in money, time, and loss of business should be made good. Another bill regulates the communal taxation of officers. The Moltke bill increasing officers' pensions in proportion to the length of service, the same as civil pensions, was approved. The social reforms of Prince Bismarck were extended by the establishment of accident and sickness insurance for laborers employed in agriculture and forestry, and accident insurance for persons in military service.

The debate on the prolongation of the anti-Socialist law occurred soon after the labor disturbances in Belgium. Amendments proposed by Windthorst, striking out the prohibition of meetings, lessening the restrictions on the press, and mollifying the minor state of siege, were adopted. On the motion of Deputy Härtling, the duration of the law was reduced to three years. With these changes it was re-enacted by 169 votes to 137. The Center and Progressists had declared against the continuation of the exceptional law, while Prince Bismarck had threatened an immediate dissolution of Parliament if it were not re-enacted in its entirety for five years. Minister von Puttkamer referred to Belgium as a country where riot and anarchy had resulted from freedom of speech and the press. Herr Bebel spoke of the regicide in Russia as a natural and excusable outcome of a policy of fettering public opinion. Prince Bismarck took note that the Social-Democrat leader had at length expressed approval of the murder of princes, and announced that he would accept a prolongation for two years. In the final vote one third of the Center party voted for and one third against the bill, while the remaining third remained neutral. In the extraordinary session that was held in September, the Socialists charged the Saxon authorities with misusing the anti-Socialist laws for the purpose of suppressing trade-unions and checking labor-strikes. In the spring and early summer there were extensive strikes in the capital. The Social-Democrats attacked Herr von Puttkamer in the Reichstag, on account of a ministerial order requiring public meetings to be notified to the police and receive authorization forty-eight hours before they are held, whereas, previously, a notice at any time was sufficient.

The anti-Socialist laws were applied after their renewal in novel and unusual ways. Herr Bebel and other members of Parliament were convicted of unlawful agitation, and sent to prison. In Frankfort persons were prosecuted

for subscribing to the Zürich "Social-Demokrat," on the assumption that it is an act of propaganda to buy a Socialist paper. The military authorities, to prevent the spread of socialism in the army, ordered that soldiers should not be permitted to converse with workmen. In Berlin, a number of ladies who had formed a society for the protection of working-women, were tried in December on the charge that their society pursued political objects. The aim of the association, as appeared from the evidence, was to organize throughout Germany work-women's unions on the model of those existing among working-men, with the object of obtaining fixed working hours, higher wages, and better education for women. The members were sentenced to pay small fines, and one of them to a short term of imprisonment, and the society was dissolved. The working-people regarded this result as the indication of an intention on the part of the Government to suppress labor-unions.

The Prussian Landtag.—The Prussian Chamber was opened by the King in person on Jan. 14, 1886. A new loan was announced for relieving the pressure of school and local taxation, augmenting official salaries, and preparing for the introduction of the spirit monopoly, which was expected to yield sufficient revenue to satisfy urgent requirements of the state and imperial governments, and to conduce at the same time to public health and morality.

A resolution in favor of establishing communal savings-banks for the use of small farmers was adopted in the place of one proposing loans from state savings institutions on their land in order to prevent their farms from falling into the hands of money-lenders.

The Polish debate came on at the close of January. Bismarck had chosen the more obedient Assembly as the arena for the contest, without troubling himself to reconcile this course with his utterances regarding the competency of the individual states in questions of international import. He said that the declaration made in 1815, on taking possession of Prussian Poland, was no longer binding, that it was not of the nature of a treaty, and that it naturally premised loyalty to the state. A party that is hostile to the German state in its present form, and only acknowledges a temporary and conditional allegiance to Prussia, does not belong to the state, and has no claims on it. He confessed that it was the Polonizing tendencies of the Catholic division in the Ministry of Worship that drove him into the ecclesiastical conflict. The purpose was announced of converting into Germans the Poles who remained, after getting rid of all those of Russian and Austrian origin. This was to be accomplished by means of German schools, and by transferring the Polish officials and soldiers to German provinces. The colonization of the Polish districts by German land-owners and farmers, after expropriating the Polish nobility, was proposed, and authority was asked to advance

100,000,000 thalers from the treasury for the operation. The number of foreign Poles expelled from East Prussia was about 35,000. The Center party, the German Liberalists, and the Poles, left the hall after the refusal to refer to a committee the Achenbach resolution, pledging the support of the Chamber to further measures for the development of the German population and culture in the border provinces, as the rules of the House required, because it involved the expenditure of money. The resolution was then carried, on January 30, with only one dissentient voice out of 245. A bill to establish secondary schools in the provinces of West Prussia and Posen was passed on April 3. Windthorst proposed, without success, to have instruction on Sundays and holy days forbidden in these schools. A bill to punish parents who neglect to send their children to school in Posen and Silesia was also passed. The bill to promote the German colonization of West Prussia and Posen was vigorously opposed by Catholics and Liberals, and characterized as a measure dictated by passion, like the May laws, but was passed by 214 votes to 120. In a Government bill dealing with elementary teachers in Posen and West Prussia a clause transferring the burden of their maintenance from the landlords to the state was stricken out.

Repeal of the May Laws.—The Pope, in a letter accompanying a decoration bestowed on Prince Bismarck, in return for the diplomatic courtesy shown in referring the dispute over the Caroline Islands to his decision, reminded the Chancellor that, if all obstacles were removed, he could afford powerful assistance in preserving public order and the security of the state. In an encyclical letter to the Prussian bishops, the Pontiff regretted that new legislation had disturbed the harmony between church and state, and demanded the institution of clerical seminaries under the direction of bishops, the admission of Catholic missionaries to the German colonies, and the recognition of the exclusive right of bishops to bestow ecclesiastical offices.

On February 15 the Prussian Government brought forward in the Upper House an ecclesiastical bill, which satisfied nearly all the demands of the Curia. No scientific state examination is in the future to be required as a condition of investiture in a spiritual office. The supervision of the state over religious houses and seminaries is to be only such as the common law prescribes. The royal court of law for ecclesiastical matters is abolished. The essential features of the May laws were thereby rescinded. Yet, though Rome was appeased by this ignominious journey "to Canossa," Windthorst and his powerful following were not immediately disarmed nor reconciled, as they might have been by an earlier abandonment of the *Culturkampf*. The Chancellor no longer sought the co-operation of the Center, but aimed at the dissolution of the party by granting all its demands, leaving Windthorst

only the unpractical programme of hostility to the state school system. He cared as little about the susceptibilities of the diminished National-Liberal party, but had combinations in a new Reichstag in view, the formation, if possible, of a Bismarck party pure and simple.

The Prussian House of Lords had not before been the scene of politico-ecclesiastical discussion. The measure was the result of diplomatic negotiations with the Holy See. Bishop Kopp, of Fulda, represented the Pope in the deliberations, and proposed amendments that were accepted, abolishing recourse to the civil authorities in the case of priests who have incurred ecclesiastical disciplinary punishment, and recalling the condition that the directors and teachers of the episcopal seminaries that are to provide a substitute for university instruction must be acceptable to the Government.

In a note dated April 2, the Vatican abandoned the position previously taken by Cardinal Jacobini, and accepted the obligation to notify the Government, not only in respect to filling the curves at present vacant, but in all cases, provided the Government would promise a further revision before long. Prince Bismarck disingenuously sought to cast the responsibility for the May laws entirely upon the Minister of Worship and Prime Minister, under whom they were enacted, declaring that he had approved of them only as a political weapon, and upon closer study had found that the state had laid claim to functions that were in many instances of little value. He had chosen the way of negotiation with the Pope, who was simply a Catholic, wise, moderate, and peace-loving, and more a friend of Germany than the Center was. The Liberals of every shade opposed the bill, which passed with the votes of Catholics, Poles, and Conservatives. In the House of Deputies, where the bill was passed on May 10 by a vote of 260 to 108, the Center and German Conservatives voted for and the National Liberals, all but one, against the measure, while the Free Conservatives and German Liberalists were divided.

A later note of Cardinal Jacobini announced that the ecclesiastical authorities would begin immediately to give notice before appointing priests to the then vacant parishes. Prince Bismarck said that this note was not the final settlement, but only an installment. The Curia wished to allay the mistrust, though he entertained none so long as Pope Leo XIII ruled the Church. The peace that they were dealing with was not like one between belligerent states, laying down fixed boundaries. The forms of the law in this case were only the vessel, the contents of which were the temper and good-will of those on whom the execution of the law depended. The vessels may be filled with the milk of kindly opinions, or they may be filled with cankered dragon's venom. What was intended was to take away the opponents' sting, and uproot mistrust and passion from one's own heart. If

that would not lead to the goal, then they could begin the battle anew with other May laws.

The Center seized every opportunity to oppose and agitate against the Government in order to maintain the existence of the party. The Bishop of Fulda and other ecclesiastics who had taken part in the reconciliation incurred the hostility of the politicians and the Ultramontane press. The Vatican declared a certain class of pastoral charges exempt from the agreement to notify appointments, and on this point further negotiations were carried on with Rome. A systematic ecclesiastical law embodying the principles settled in the present *modus vivendi* is to be worked out in the Landtag session of 1887. The agreement with Rome was followed by the appointment of bishops to the last of the sees remaining vacant, those of Posen-Gnesen and Kulm, which were filled with prelates of German extraction. The duty of the bishops to give notice before appointing parish priests, which was the concession that won the support of the Conservatives for the repeal of the Falk laws, implies that if the Government objects to the persons nominated they shall not be definitely clothed with the office until the objections are answered, and the difference is accommodated. In June the Government announced the definite recognition of the duty of notification. The bishops afterward sought to minimize this concession, denying that it implied a recognition of the right of the Government to veto an appointment, but only of their duty to communicate the names of parish priests on their appointment, and to consider any objections the Government might make on the ground of their political actions. Negotiations on this point and in regard to further revision of the May laws were continued with the Vatican through the year.

A bill, proposed by Herr Hammerstein, to render the Lutheran Evangelical Church more independent of the state and municipal authorities, was rejected.

The Heidelberg Festival.—The five-hundredth anniversary of the University of Heidelberg was celebrated with magnificent ceremonies. Among the other foreign powers whose representatives rendered intellectual tribute to German science on this occasion were France and the Papal See.

The Reichsland.—In the municipal elections in Strasburg and Metz the German party gained an unexpected and decisive victory. A German burgomaster was chosen in the regular way, for the first time, in Strasburg.

Foreign Relations.—The Three-Emperors' League has been described by the German Chancellor as "a vaulted arch" that can stand any pressure from outside; yet through the Bulgarian complications his skill as an "honest broker" has been put to a severe test to prevent a conflict between Austria and Russia. In the beginning of August the German and Austrian Emperors met in Gastein, and Prince

Bismarck and Count Kalnoky had a conference, that was preceded by a visit of the Austro-Hungarian Premier in Kissingen, where the German Chancellor was taking the waters. The acquiescence of Austria in the restoration of Russian predominance in Bulgaria was obtained at these interviews. The Austrian minister could the less object to a return to the previous condition of things, because his Government had openly followed the policy of allowing no foreign influence but its own in Servia. The Russian attempt to regain the lost influence in Bulgaria, by means of a military conspiracy and the abduction of the Prince increased the difficulty of the situation, yet the dethronement of Alexander was decided upon in a visit paid by Prince Bismarck to Minister von Giers at Franzensbad, which was returned twelve days later in Berlin. The plucky Battenberg felt compelled, after his triumphant return to Sofia, to bow to this decision, and voluntarily abdicate. The situation became grave when Russia prepared to occupy Bulgaria. Austria declared that she would not allow a military occupation. The Czar finally promised the German court that he would not proceed to an armed intervention. The refusal of the German bankers to take a new Russian loan, and the inability of the Czar to raise a war loan in Paris, rendered the prospect of peace more secure for the immediate future. Bismarck declared that Germany had no interests in Bulgaria, and his organs derided the sentimental politicians who, out of sympathy with the Bulgarians and the Battenberg prince, fomented a war feeling in Germany against Russia. He was willing to go to any length of concession in order to prevent an alliance between Russia and France. If Russia and Austria came into collision, Germany must remain neutral, because if she became involved in a war with Russia she would immediately be attacked on the other flank by France. No government in France, in the opinion of the Chancellor, would be able to withstand the popular impulse for war if such an opportunity occurred to regain the lost frontiers. The Moderate Republicans, who have hitherto directed French policy, are considered to be in favor of peace, while the Radicals are more hostile to Germany, and the Orleanists are thought to be committed to a war of revenge, which would immediately follow a restoration of the monarchy. If, in the event of a war between Austria-Hungary and Russia, the latter should be successful, and threaten to crush the military power of the Hapsburg monarchy, then Germany would be compelled by her own interests to take part in the conflict, and to save her natural ally from extinction.

The bickering between Germany and England in regard to the German colonies has entirely ceased. The limits of German territory and influence in New Guinea and the smaller South Sea islands were definitely arranged. The frontier line between the dominions of the

Sultan of Zanzibar and the German possessions in East Africa was settled by treaty. As a favor to Spain, the right to establish a German station in the Caroline Islands was given up, but more valuable places were secured in the Marshall and Providence groups, and depots erected there.

One of the last acts of the Reichstag, which closed its session on June 26, was to approve a convention with Great Britain for the protection of authors' rights in works of literature and art. Switzerland wished a revision of the customs treaty, but was induced to postpone the negotiations.

On Sept. 17 the Reichstag was called together for a special session in order to take action on a new commercial treaty with Spain. The representatives from iron-producing districts feared the competition of Spanish iron. The treaty was, however, accepted, and the extraordinary session closed on Sept. 20. The Social-Democrats desired to interpellate the Government with regard to whether the Chancellor had agreed to the deposition of Prince Alexander and the extension of Russian influence in the Balkan Peninsula, and whether the German Government had brought pressure to prevent the punishment of the Bulgarian traitors. But the Government refused to answer questions regarding foreign politics.

Bavaria.—The scandal of King Ludwig's debts, which, after being once settled by a state loan, again amounted to millions, drove the ministry to interfere and transfer the royal authority to a Regent after the King had been judicially pronounced *non compos mentis*. There was no question of the King's lunacy among those best informed, although it had often been publicly denied. The ministers were averse to confiding the control of the Government to Prince Luitpold, because they feared that he would endeavor to bring about an Ultramontane reaction. After the King had been declared insane and placed under restraint, there was danger of civil disturbances, and public excitement reached a high pitch when, three days later, the insane monarch drowned himself. (See LUDWIG, KING, OF BAVARIA.)

The Bavarian Highlanders were not convinced before nor after the death of the King that he was insane, though the fact was established beyond question by an autopsy. He had shown himself to them kind and generous, though uncommunicative and suspicious toward all other people. Many of the peasantry flocked to Munich, under the impression that a great wrong had been done to their friend and monarch, who, if insane at all, had been made so by being deposed and placed under restraint. Certain base politicians encouraged this dangerous feeling, which threatened to lead to civil disturbances. The successor of Ludwig II is his brother Otto, born April 27, 1848, who has been for years a hopeless lunatic. The taint of insanity does not

come from the Wittelsbach family, but from the Hohenzollerns, through their mother, who was a daughter of Prince Wilhelm of Prussia. Prince Luitpold, the next heir to the throne, assumed the regency upon the decision of a commission *de lunatico inquirendo*, on June 9. He is the uncle of the two insane kings, and the third son of Ludwig I, is sixty-five years old, and has served as a field-marshall and in various political capacities.

Dr. von Lutz, the Prime Minister, and his colleagues, offered their resignations, but were asked to retain their posts by the Regent.

GOUGH, John Bartholomew, an American orator, born in Sandgate, Kent, England, Aug. 22, 1817; died in Frankford, Pa., Feb. 18, 1886. The family consisted of the father and mother, John, and one sister; and they were supported by the mother, who was the village school-mistress, her slender salary being eked out, during John's babyhood, by a small pension received by the father for service as a private soldier during the Peninsular war. This ceased at his death, and the mother struggled along, giving her boy instruction in the rudiments of education, until he was twelve years old, when an



JOHN B. GOUGH.

opportunity offered to send him to seek a better fortune in the New World, with a company of his mother's friends, who promised to take charge of and assist him until he should have learned a trade and become self-supporting. The mother raised ten guineas, and in August, 1829, the boy landed in New York. The family that brought him settled in Oneida County, where young Gough was placed on a farm, on which he worked for two years. At the end of that time he obtained employment in the binding department of the Methodist Book Concern, in New York city. Here he learned the trade of book-binder, and sent for his

mother and sister, who reached New York in 1833. Mrs. Gough died in a few months, hard times came on, the youth lost his place, and, having formed evil associates, fell into habits of dissipation. In 1839 he set up as a book-binder on his own account, and married; but his nightly debauchery hindered his daily work, so that he lost custom and sank into the deepest poverty and degradation. His wife and child died from exposure, and at the age of twenty-four this naturally brilliant youth seemed a hopeless drunkard and an outcast from decent society. He had great powers of representation and of imitation, and could stir an audience wonderfully. He had a great desire to go upon the stage, and made one or two earnest efforts to prepare himself; but the passion for vice and intemperance was too strong to admit of any steady pursuit, and he soon sank into earning his livelihood in low resorts, where his comic acting and rude singing won the applause of his besotted companions.

In 1842 a kind Providence put it into his heart to quit his vile associates and seek work in Worcester, Mass. He has thrilled innumerable audiences with the story of his first year there, of the delirium that possessed him, of the tools that were forever turning to serpents in his hands, until he was forced to run from the crawling devils that stung him while he tried to wield them. Then they listened with bated breath as he told how a Quaker persuaded him to attend a temperance meeting, to sign the pledge, and then to keep it in spite of an awful craving for liquor. He had resisted for several months, when he was induced to violate his pledge. After a severe struggle he confessed his fall in a public meeting in Worcester, took the pledge again, and resolved to devote himself to the cause of reforming drunkards, which purpose he clung to with great tenacity. He became a talker to whatever audience he could get when it was at personal sacrifice, and contrived, when money earned by his eloquence brought temptation, to live a life of greater ease. At first he set out with his carpet-bag to walk through New England and make an appeal wherever he could find a hearer, and he was delighted when he received seventy-five cents for a lecture. His reputation soon rose. Impassioned, eloquent, gifted in voice and expression, telling the tale of his own bitter experience, he held his hearers spellbound, and his fame went throughout the land. He could draw tears and excite laughter, and men yielded to his persuasions with marvelous readiness. For seventeen years he lectured solely upon temperance, and addressing over five thousand audiences, North and South, East and West. In 1853 he was invited to visit England by the London Temperance League, and was entertained there by George Cruikshank, the artist, who was an earnest advocate of total abstinence. Mr. Gough's first address in Exeter Hall produced a profound sensation, and,

although he had gone to England to remain but a few months, he stayed there two years, working hard for the great cause. During the second year he was announced to speak at Oxford, when the undergraduates determined to break up his meetings by hisses; but his tact and power were such that the yells and cat-calls grew fainter, and his enemies found themselves listening with serious attention. On a second visit, in 1858, he met a distinguished reception. In 1855 he returned to his adopted home, and, after two years of successful lecturing, returned to England for three years.

In all his work, Mr. Gough relied entirely upon personal moral influence. He introduced the total-abstinence pledge at the close of every address, but was never the spokesman of any political or temperance organization. He told his own story, and made the direct appeal with an eloquence and natural oratorical power seldom equaled. His home was in Massachusetts, latterly at West Boylston, where his wife lived quiet and retired, and where he sought rest among his books and friends. His private benefactions were large, and he assisted many boys to obtain education and means of livelihood.

He published an autobiography (London, 1846; second edition, 1853); "Orations" (1854); "Temperance Address" (New York, 1870); "Temperance Lectures" (1879); and "Sunlight and Shadow, or Gleanings from my Life-Work" (1880). He was delivering a lecture in the First Presbyterian church, Frankford, Pa., when he was prostrated by a paralytic stroke. He never rallied, but after two days sank into unconsciousness, which continued until his death.

GREAT BRITAIN AND IRELAND, a monarchy in Western Europe. The supreme legislative power resides in Parliament, which is not restrained in its action by any constitutional limitations, but is largely guided by precedents. Parliament meets annually, usually remaining in session from February to the middle of August, or later. Legislation left incomplete at the end of the session must, to become law, go through all the stages from the beginning in a subsequent Parliament.

The House of Commons consists of 670 members, elected by ballot. By the Reform Act of 1832 the county constituencies of England were increased from 52 to 82, and the number of county members was increased from 94 to 159, while those of Scotland and Ireland remained as before; boroughs returning 111 members were disfranchised, because they contained fewer than 2,000 inhabitants, and 31 boroughs, with fewer than 4,000 inhabitants, sent one member instead of two, while 46 new boroughs were created in England, 22 of which, containing over 25,000 inhabitants, returned two members each, and 24, with over 12,000 inhabitants, one member each. In Scotland the representation was increased from

45 to 53, and in Ireland from 100 to 105. The Reform Bill of 1868, introducing household and lodger suffrage in the boroughs, gave 493 members to England and Wales, and 60 to Scotland, while the number from Ireland remained unaltered. The act of 1884 extended the household and lodger franchises to the county constituencies, and established the same electoral qualifications in Ireland as in Great Britain. The re-distribution act of 1885 divided great towns into constituencies returning single members; 81 English, 2 Scottish, and 22 Irish boroughs, with a population of fewer than 15,000, were disfranchised; 36 English and 3 Irish boroughs, having fewer than 50,000 inhabitants, lost one of their two members; 14 English, 3 Scottish, and 2 Irish boroughs gained additional members; and 33 new boroughs were created, all of them, except 6, in the metropolis. Towns having between 50,000 and 165,000 inhabitants still return two members, but all larger towns and the counties are divided into districts, each sending one member. The number of members representing county constituencies was increased by the re-distribution act in England from 187 to 253, in Scotland from 26 to 37, in Ireland from 64 to 85; the total number from 283 to 377. The number of borough members was in England reduced from 297 to 237, and in Ireland from 37 to 16, and increased in Scotland from 26 to 31. The number of members representing universities remained the same, 5 in England, 2 in Scotland, and 2 in Ireland. The total number of members was increased from 652 to 670, Scotland gaining 12, and England 6 new seats. The effect of the Reform Bill in enlarging the electorate may be seen from the following table, giving the number of qualified voters in 1883 and 1885:

CONSTITUENCIES.	1885.	1883.
COUNTIES :		
England and Wales.....	2,539,840	966,719
Scotland	324,800	99,652
Ireland	545,415	165,997
Total counties.....	3,410,055	1,232,368
BOROUGHS :		
England and Wales.....	1,857,000	1,651,732
Scotland	247,700	210,759
Ireland.....	196,570	58,021
Total boroughs.....	2,301,270	1,920,542
Total electorate.....	5,711,325	3,152,910

The number of votes cast in 1885 was 3,307,200, or 57 per cent. of the electorate.

The reigning sovereign is Victoria I, Queen of Great Britain and Ireland and Empress of India, born in 1819. The heir-apparent is Albert Edward, Prince of Wales, born in 1841.

The Conservative Cabinet that was in office in the beginning of 1886 gave way to a Liberal ministry, constituted February 6, and composed as follows: First Lord of the Treasury, William Ewart Gladstone; Lord High Chancellor, Sir Farrer Herschell, Baron Herschell;

Lord President of the Council, Earl Spencer; Chancellor of the Exchequer, Sir William Vernon Harcourt; Home Secretary, Hugh C. E. Childers; Foreign Secretary, the Earl of Rosebery; Colonial Secretary, Earl Granville; Secretary of State for India, the Earl of Kimberley; Secretary of State for War, Henry Campbell-Bannerman; First Lord of the Admiralty, Earl Ripon; President of the Board of Trade, Anthony James Mundella; President of the Local Government Board, Joseph Chamberlain; Secretary of State for Ireland, John Morley; Secretary of State for Scotland, George Otto Trevelyan.

Upon the resignation of Mr. Gladstone in June, 1886, Lord Salisbury again formed a Cabinet, containing the following members: First Lord of the Treasury, the Marquis of Salisbury; Lord Chancellor and Keeper of the Great Seal, Sir Hardinge Gifford, who was created Lord Halsbury; President of the Council, Viscount Cranbrook; Chancellor of the Exchequer, Lord Randolph H. S. Churchill; Secretary of State for the Home Department, Henry Matthews; Secretary of State for Foreign Affairs, Sir Stafford Northcote, created Earl of Iddesleigh; Colonial Secretary, Edward Stanhope; Secretary for War, W. H. Smith; First Lord of the Admiralty, Lord George Hamilton; Chief Secretary for Ireland, Sir Michael Hicks-Beach; Indian Secretary, Viscount Cross; Lord Chancellor of Ireland, E. Gibson, created Lord Ashbourne; Chancellor of the Duchy of Lancaster, Lord John Manners; President of the Board of Trade, Lord Stanley de Preston.

Area and Population.—According to the computation of the Registrar-General, the population of the United Kingdom in 1886 was 36,707,418. The population of England and Wales, with an area of 58,186 square miles, was 27,870,586; that of Scotland, with 29,820 square miles, was 3,949,393; that of Ireland, 32,531 square miles in extent, was 4,887,459. The combined area of the Isle of Man and the Channel Islands is 295 square miles, with a population of 141,260, making the total area of the United Kingdom 120,832 square miles, and the total population, inclusive also of 215,374 soldiers and sailors abroad, 37,064,052.

The number of births in England and Wales in 1885 was 893,694, of deaths 522,517, of marriages 197,446, excess of births over deaths 371,177; the number of births in Scotland 126,110, deaths 74,603, marriages 25,256, excess of births 51,507; the number of births in Ireland 115,964, deaths 90,883, marriages 21,329, excess of births 25,131. The population of the metropolitan district of London in 1885 was 4,083,928. The population of Liverpool was 579,724; of Birmingham, 427,769; of Manchester, 337,342; of Leeds, 338,139; of Sheffield, 305,716; of Bristol, 218,169; of Bradford, 214,431; of Nottingham, 211,424; of Salford, 204,075; of Hull, 186,292; of Newcastle on-Tyne, 153,209. The population

of Glasgow with its suburbs in 1881 was 674,095; of Edinburgh, 236,002; that of Dublin, 349,648 with, and 249,602 without, its suburbs; of Belfast, 208,122.

The number of immigrants into the United Kingdom in 1885 was 113,549. The total emigration in 1885 was 264,385, including 53,783 foreigners, and 2,958 of unknown origin. Of the 126,260 English who emigrated, 73,789 went to the United States, 14,817 to British North America, 28,380 to the Australasian colonies, and 9,274 to other countries; of 21,367 Scotch, 13,241 to the United States, 2,345 to Canada, 4,731 to Australia and New Zealand, and 1,050 to other countries; of 60,017 Irish, 50,657 to the United States, 2,676 to Canada, 6,284 to Australia, and 400 to other countries.

It is estimated that in 1883 the population in England and Wales claiming membership with the Established Church was about 13,500,000, and that belonging to the various Dissenting societies 12,500,000. The number of Roman Catholics is estimated at 2,000,000. The Church of Scotland had, in 1884, 555,622 members. The Free Church had about 945,000 adherents, and the United Presbyterian Church 179,891. The Episcopal Church of Scotland had 76,939 adherents. The number of Jews in Great Britain was estimated in 1883 at 70,000, of whom 40,000 reside in the metropolis. The population of Ireland is Roman Catholic with the exception of 620,000 persons belonging to the Episcopal Church of Ireland, 470,734 Presbyterians, 48,839 Methodists, 6,210 Congregationalists, 4,879 Baptists, 3,645 Quakers, and 472 Jews.

Education.—In 1883 the percentage of persons who signed with their mark in England and Wales was 12·6 among males and 15·5 among females, as compared with 23·8 and 33·1 per cent. in 1863. In Scotland the proportion in 1882 was 6·8 per cent. of the men and 13·1 per cent. of the women. In Ireland, 24·7 per cent. of the men and 28·1 per cent. of the women were unable to sign the marriage register in 1884. The education act of 1870 declares that school accommodation must be provided in every district of England and Wales, and that parents must give their children the advantages of education, between the ages of five and thirteen. A similar law was enacted for Scotland. In 1884 there were 18,761 schools inspected and receiving Government subsidies in England and Wales, with 82,447 teachers, and 3,273,124 children in average attendance. The number of children in attendance at schools in England and Wales in 1886 was 4,630,000, or 16·67 per cent. of the total population, as against 7 per cent. in 1869. The daily attendance was 62 per cent. of the school population. The expenditure in 1885 included £757,000 of voluntary contributions, £1,141,000 from the rates, and £1,791,000 from school-pence collected from the parents. The sum voted by Parliament was £3,422,989. The report of a commission to investi-

gate over-pressure stated that the studies exacted, for the sake of earning as large a Government grant as possible, are less severe than in German schools, where children are kept in school 32 hours a week with 32 subjects, while in England they are 20 hours at school with 7 subjects. The number of schools in Scotland was 3,131 in 1884; the number of teachers, 11,712; the average attendance, 448,242. The number of children of school age in England and Wales in 1884 was 5,426,490; in Scotland, 798,545. Of the schools in England and Wales, 4,181 were directly under school boards in 1884; 11,808 connected with the National Society or the Church of England; 558 were Wesleyan, 828 Roman Catholic, 1,497 British, undenominational, and other schools. In Scotland, 2,535 were public schools, 112 connected with the Church of Scotland, 150 with the Roman Catholic Church, and the rest with other bodies or undenominational. In Ireland, out of a total school population of 999,657, the number of children attending the national schools in 1884 was 492,928. The annual grants from the Treasury to primary schools in England in 1884 was £3,016,167; in Scotland, £475,413; in Ireland, £732,627. In addition to the Government grants the schools received an income from endowments, school fees, local rates, and private subscriptions, amounting in England to £3,605,763, in Scotland to £529,618, and in Ireland to £193,092 in 1884.

There are 69 colleges, known as university colleges, in the United Kingdom, with 1,244 teachers on their staffs, and 26,236 students, in 1885. The University of Oxford, comprising 24 colleges, has 257 teachers and 3,082 students. Cambridge University, with 19 colleges, has 188 teachers, and 2,862 students. Victoria University, comprising Owens College, Manchester, and University College, Liverpool, has 82 teachers and 1,211 students. Durham University, with three colleges, including the Newcastle College of Science and Medical School, has 48 teachers and 617 students. Leeds College has 43 teachers and 1,053 students, about one third of them evening students. London University, which is only an examining body, granting degrees to those who pass the examinations, has a staff of 57 professors and counts 1,246 students. King's College, London, has 102 teachers and 2,081 students, including 1,457 evening students. There are four university colleges for ladies, viz.: Newnham College, Cambridge, with 30 teachers and 102 students; Girton College, Cambridge, with 20 teachers and 82 students; and Lady Margaret and Somerville Halls, Oxford, having together 86 students in 1885. In Scotland the University of Aberdeen had 30 teachers and 901 students; Edinburgh University, 93 teachers and 3,423 students; Glasgow University, 53 teachers and 2,261 students; the University of St. Andrews, 15 teachers and 203 students. The University of Dublin had

57 teachers and 1,300 students; Queen's College, Belfast, had 435 students; Queen's College, Cork, 272; and Queen's College, Galway, 100 students. The Catholic University of Ireland, comprising University College, Dublin, and seven other colleges, grants degrees in theology and philosophy, but students for other degrees must pass the examinations of the Royal University, which holds the same position in Ireland that the London University does in England, and in 1885 examined 2,885 candidates for degrees.

Commerce.—The total value of the imports of merchandise in 1885 was £373,834,314; of the exports, £270,934,932, comprising British produce of the value of £213,031,407, and foreign produce of the value of £57,903,528. The imports had declined in total value from £426,-892,000 in 1883. In that year they were \$58 per head of the population, and in 1885 \$49.50. The exports of British products were greatest in 1882, amounting to £241,467,000, and averaging \$33 per capita, while in 1885 the average was as \$28.50. The declared value of the imports of precious metals in 1885 was £22,810,000, made up of £13,376,000 of gold and £9,434,-000 of silver; of the exports, £21,783,000, of which gold constituted £11,931,000 and silver £9,852,000. The following table presents a summary of the imports for the year ending Dec. 31, 1885:

IMPORTS.	Values.
Live animals for food.....	£373,834,314
Articles of food and drink, duty-free.....	124,039,026
Articles of food and drink, dutiable.....	25,066,653
Tobacco.....	3,900,559
Metals.....	16,287,049
Chemicals, dyes and tanning materials.....	8,797,586
Oils.....	6,187,921
Textile materials.....	73,649,118
Sundry raw materials.....	88,595,577
Manufactured articles.....	53,418,162
Miscellaneous.....	14,344,321
Total.....	£373,834,314

The exports of the various classes of British products in 1885 were as follow:

DOMESTIC EXPORTS.	Values.
Live animals.....	£513,374
Articles of food and drink.....	9,942,505
Raw materials.....	13,867,307
Yarns and textile fabrics.....	101,871,483
Metals, raw and manufactured, except machinery.....	81,726,696
Machinery.....	11,074,651
Apparel, etc.....	10,343,513
Chemicals and medicines.....	6,975,420
All other manufactures.....	27,216,425
Total.....	£213,031,407

The quantity of grain and flour imported was 142,742,075 cwt., as compared with 119,-600,056 cwt. in 1884; of bacon and hams, 4,065,349 cwt., as compared with 3,418,431 cwt.; of fish, 784,252 cwt., as compared with 1,336,422 cwt.; of beef, 1,142,786 cwt., as compared with 1,090,739 cwt.; of preserved meat, 526,727 cwt., as compared with 450,990 cwt.; the number of cattle, 373,115, as compared with 425,507; the number of sheep and lambs, 730,927, as compared with 945,042; the quantity of butter and butterine, 2,400,575

cwts., as compared with 2,475,436; the number of eggs, 835,130,600, as compared with 999,608,760; the quantity of refined sugar, 5,338,050 cwt., as compared with 4,263,873 cwt.; of raw sugar, 19,383,746 cwt., as compared with 19,622,679 cwt. The values of the leading articles of import in 1885, compared with the values imported during the year preceding, were, in thousands of pounds sterling, as follow:

ARTICLES.	1884.	1885.
Grain and flour.....	48,061	52,749
Cotton, raw.....	44,485	36,044
Wool.....	26,517	14,410
Sugar.....	19,672	18,447
Timber.....	15,081	15,244
Metals.....	16,506	16,287
Bacon and hams.....	8,740	8,714
Animals.....	10,420	8,185
Butter.....	12,548	11,560
Tea.....	10,494	10,717
Silk manufactures.....	10,984	10,267
Flax, hemp, jute.....	8,803	8,647

The value of the exports of cotton manufactures in 1885 was £66,972,044; iron and steel, £21,717,136; woolen and worsted manufactures, £23,229,842; coal, £10,632,184; linen and jute manufactures, £8,124,019.

The value of the imports from the United States in 1885 was £86,479,000, against £86,-279,000 in 1884; of the exports of domestic products to the United States, £21,994,000, against £24,427,000. The total imports from the countries of North and South America, not British colonies, in 1885 were £101,118,000 in value, and the exports of British products to those countries £40,030,000. The imports from British possessions in 1885 amounted to £84,402,000, India furnishing £31,882,000, as compared with £84,448,000 in 1884; Australia and New Zealand, £23,325,000, as compared with £28,311,000; British North America, £10,347,000, as compared with £11,040,000. The exports of domestic merchandise to British possessions amounted to £213,045,000, £29,289,000 going to India, as compared with £30,584,000 in 1884; £25,167,000 to Australasia, as compared with £23,896,000; and £7,206,000 to British America, as compared with £8,653,000. The imports from China in 1882 were £8,614,000 in value, and from Hong-Kong £968,000. The exports of British produce to China were £5,187,000; to Hong-Kong, £3,758,000. France furnished £35,710,000 of the total imports in 1885, and received £14,979,-000 of the British exports; Germany sent £23,069,000 of imports, and took £16,416,000 of British products. The imports from the Netherlands amounted to £25,010,000; from Russia, £17,712,000; from Belgium, £15,070,-000; from Sweden and Norway, £10,942,000; from Spain, £9,465,000; from Egypt, £8,818,-000; from Denmark, £4,830,000; from Turkey, £4,681,000. The exports of British produce to the Netherlands amounted to £8,878,-000; to Belgium, £7,806,000; to Italy, £6,827,-000; to Turkey, £6,133,000. The total imports

from European countries were £168,293,000 in 1885, against £173,067,000 in 1884. The exports of British produce to European countries were £81,500,000, against £90,841,000.

Navigation.—The total tonnage of vessels in the foreign trade entered at British ports during the calendar year 1885 was 31,862,420, of which 22,980,464 tons were British. The total tonnage cleared was 32,419,222, 23,408,591 tons being British. The tonnage entered with cargoes was 25,664,460; cleared, 29,317,731; the steam tonnage entered was 24,586,866; the steam tonnage cleared, 24,923,001. The tonnage of vessels engaged in the home trade was 44,560,900 entered, and 37,902,292 cleared.

The number of sailing-vessels registered in 1885 was 16,609 of 3,417,000 tons, as compared with 17,569 of 3,423,000 tons in 1884; the number of steamers, 6,621 of 3,970,000 tons, as compared with 6,580 of 3,941,000 tons. The total tonnage in 1885 was 7,387,000; in 1884, 7,364,000. There were, in 1885, 10,083 sailing-vessels of 658,000 tons, and 1,706 steamers of 300,000 tons, employed in the home trade, limited to the British coasts and ports of the North Sea and the Channel; 512 sailing-vessels of 68,000 tons, and 217 steamers of 86,000 tons, employed partly in the home trade and partly in foreign trade; and 3,180 sailing-vessels of 2,594,000 tons, and 3,093 steamers of 3,503,000 tons employed in foreign commerce.

The Post-Office.—The number of letters sent through the post-office during 1885-'86 was 1,403,547,900, an increase of 3·2 per cent. over the number of the preceding year. Of the whole number, 84 per cent. were delivered in England and Wales, 9·6 per cent. in Scotland, and 6·4 per cent. in Ireland. The number of post-cards forwarded was 171,290,000. Including newspapers, books, and parcels, the total number was 2,091,183,822. The number of parcels sent by the parcels-post during the second year of its operation nearly reached Mr. Fawcett's estimate of 27,000,000, being 26,527,000 in 1885-'86. The rates for packages of medium weight have been lowered, and arrangements have been completed with foreign countries and most of the colonies for an international service.

Telegraphs.—The length of telegraph lines in the United Kingdom in January, 1886, was 28,500 miles, with 158,568 miles of wire. The number of messages in 1885-'86 was 33,199,971 in England, 3,812,173 in Scotland, and 2,223,669 in Ireland, making a total of 39,235,813. The act of Parliament reducing the price of inland telegraph messages to 6d., went into force on Oct. 1, 1885. During the six months preceding that date the number of dispatches was 11,914,428, and the receipts from them £604,436. During the first six months under the new rate the number of dispatches rose to 16,787,540, and the receipts fell to £564,203. In April, 1886, the number of messages was 40 per cent. greater than in April, 1885; in May it was 51 per cent. greater, though the

receipts were still less than in the same month in 1885; but in June, which showed an increase of 61 per cent. over the preceding June in the number of telegrams, the receipts were larger than under the old rate. For the year 1885-'86 the revenue from the state telegraph service was £1,787,251; the expenses were £1,826,858, not including the interest on the £10,880,571 raised for the purchase of the telegraphs.

Railroads.—The number of miles of railroad open to traffic at the end of 1885 was 19,169, of which 13,612 miles were in England and Wales, 2,982 in Scotland, and 2,575 in Ireland. The total amount of paid-up capital was £815,858,000. The number of miles of new road constructed during 1885 was 305, at a cost per mile of about \$228,000. The number of passengers carried in 1885 was 697,213,000; the number of tons of minerals carried, 188,776,000; tons of merchandise, 73,511,000. Working expenses absorbed 53 per cent. of the gross receipts, the same proportion as in 1884. The passenger and freight receipts were both less than in the preceding year, the gross receipts showing a falling off of £1,034,000. They amounted to £69,553,000, and the net receipts to £32,768,000, representing a profit on the capital expenditure of 4·02 per cent., which was less than in any year since 1867, when the profit was 3·91 per cent.

Finances.—The financial accounts for 1884-'85 give the total ordinary revenue as £88,043,110, and the total expenditure as £89,092,883. The total ordinary revenue in 1885-'86 was £89,581,301, and the expenditure £92,223,844. Of the receipts £9,388,444 were derived from the duty on tobacco, £4,184,875 from imported spirits, £4,187,318 from tea, £1,195,849 from wine, and £960,509 from other duties on imports, making the entire receipts from customs £19,916,995. The yield of the excise duties was £26,386,361, of which £13,902,953 were derived from the spirit duties, £8,565,892 from the malt duty, and the remainder mostly from licenses of various kinds. The stamp duties produced £11,761,287, the land and building taxes £2,915,459; the income-tax, which was fixed at 8d. on the pound, £15,247,312; the post-office, £8,734,491; telegraphs, £1,974,853; domains, £505,369; interest on moneys advanced for local works and on Suez Canal shares owned by the Government, £1,376,080; various other receipts, £3,008,221. With the balance in the treasury, amounting to £4,993,207, and extraordinary receipts, amounting to £39,357,299, the total receipts of the treasury in 1885-'86 amounted to £133,931,807. The total ordinary expenditures amounted to £92,223,844, and extraordinary expenditures to £41,708,982, making the total expenditure £133,932,826. Of the ordinary expenditures £23,449,678 were for the public debt, £1,638,387 for the civil list, pensions, and other charges on the consolidated fund, £17,725,764 for the civil service, £17,027,084 for the army, £12,660,509 for the navy, £9,451,000 for military

and naval operations, £250,000 for the Afghan expedition, and £10,021,422 for the telegraph, postal, excise, and custom-house services. The revenue receipts from alcoholic beverages were less by £971,000 than in 1884-'85, and £4,379,000 less than ten years before. The income-tax produced £240,000 less than the year before. The decline in the spirit revenue from 19s. 1d. to 14s. 9d. per head of population since 1876 was attributed to increased temperance rather than to decreased consumptive power, since the duties on tea, tobacco, sugar, etc., had increased so as to make good half the loss on alcoholic duties. The yield of the income-tax was £1,980,000 per penny, having increased from £810,000 in 1852, but showing a falling off since 1883, when it was £2,016,000. The budget prepared by Sir William Harcourt for 1886-'87 proposed no changes in taxation besides the remission of the tax on beer brewed in cottages. The income-tax was again assessed at the abnormally high rate of 8d. The total expenditure was estimated at £90,428,499, and the total revenue at £89,869,000, leaving a deficit of £59,499 in addition to those of the previous two years, amounting to £3,692,000. The consolidated debt on March 31, 1886, amounted to £638,849,694, the capitalized value of outstanding annuities to £85,829,917, and the unfunded debt to £17,602,800, making the total public debt £742,282,411, against £740,330,654 in 1885.

The receipts of the local administrations during 1883-'84 amounted in England and Wales to £51,159,686, in Scotland to £7,270,959, and in Ireland to £4,290,058; total for the United Kingdom, £62,720,703. The total expenditures were £64,087,197, of which £17,898,061 were for public charity, £40,016,176 for municipal government, police, and public health, and £6,172,960 for other expenses.

The Army.—The regular army in 1886 consisted of 210,985 men of all ranks, with 23,461 horses and 600 guns. The effective armed forces of the United Kingdom were returned in the early part of 1886-'87 as follow: Regular forces at home and in the colonies, 129,831 of all ranks; army reserve, first class, 39,244; second class, 7,738; militia, 115,192; yeomanry, 11,488; volunteers, 215,015; regular troops in India, 58,826; total, 577,334. The troops stationed in Egypt numbered about 10,000, in October, 1886.

The Navy.—The British Government, in August, 1886, possessed 20 turret-ships completed, and 6 more in progress. The 20 have a total displacement of 129,020 tons, or a little less than 6,500 on the average. Among the completed ships there are 9 vessels under 5,000 tons, 2 of from 5,000 to 7,000 tons, 3 from 7,000 to 9,000 tons, 4 between 9,000 and 10,000 tons, and 2 over 1,000 tons. The rate of speed ranges from that of the "Wivern," which attains only 10·1 knots an hour, to that of the "Colossus," which attains 15·4 knots. The "Colossus" and the "Conqueror" are each

armed entirely with breech-loading rifled guns, the former having four 12-inch 44-ton guns, and five 6-inch guns of 89 cwt. The "Conqueror," which is of little more than two thirds the displacement of the "Colossus," carries two of the 44-ton guns, and four others of five tons. The "Inflexible" carries eight 20-pounder breech-loaders, the "Agamemnon" and the "Hotspur" each two breech-loaders of 81 cwt., and the "Rupert" two of 89 cwt. With these exceptions, the armament of the completed vessels consists entirely of muzzle-loading guns, ranging in size from four of 80 tons in the "Inflexible" to four of 12 tons in the "Wivern" and the "Scorpion." The turret-ships in progress are six in number, with an average displacement of 10,000 tons, this being made up by one under 7,000, one under 10,000, two under 11,000, and two under 12,000. The armament of these vessels is designed to be entirely of breech-loaders, ranging in size from two 110-ton guns in the "Sanspareil," supplemented by others of smaller caliber, to 45-ton guns in the "Edinburgh" and the "Hero." Three barbette-ships, ranging from a little over 7,000 tons to a little over 9,000, are completed, and six others are in progress. The latter will all carry breech-loaders, and two of the former are provided with them. There are 29 broadside ships, but no more of this class are in progress, the present direction of activity seeming to be chiefly toward the construction of armored cruisers, of which seven, each of 5,000 tons, are building. There are also many unprotected cruisers. Torpedo-cruisers and torpedo-gunboats are still only in progress, but 139 torpedo-boats are completed, all of them carrying Nordenfeldt guns in addition to their special equipment. There are 37 first-class and 80 second-class gunboats. The first of the seven belted cruisers, the "Orlando," was launched at Jarrow on Aug. 4, 1886. The armor is steel-faced, and consists of a belt 10 inches thick, extending from 1½ foot above to 4 feet below the water-line for two thirds of the length of the ship. It is backed with 6 inches of teak. Above the belt is a protective deck extending over the whole length of the ship, which is 300 feet. The hull, of soft steel, is divided into over 100 water-tight compartments. The stem forms a ram, made of cast-steel. The armament consists of two 22-ton, ten 5-ton, and sixteen Hotchkiss quick-firing guns, with many small pieces, and eight torpedo launching-tubes. The estimated speed is 19 knots. A new turret-ship, the "Trafalgar," of 12,000 tons, with 20-inch compound armor, designed to carry two 66-ton breech-loaders in each of the two movable towers, and to steam 18 knots an hour, was begun in 1886. She is expected to be the most formidable armor-clad in any navy, and to be completed in four years.

The First Session of Parliament.—The first Parliament elected under the new franchise, the eleventh of Queen Victoria's reign, convened on Jan. 12, 1886, but was not regularly opened

by the reading of the royal address till the 21st. Mr. Arthur Peel was re-elected Speaker. When Mr. Bradlaugh appeared to take the oath, Sir Michael Hicks-Beach raised the stereotyped objections, but the Speaker refused to allow his transactions in the former Parliament to be made the basis of a motion.

The speech from the throne referred to the Afghan boundary delimitation, the negotiations on the Bulgarian question, the Anglo-Turkish Commission in Egypt, and the annexation of Burmah, and announced an inquiry into the government of India. With reference to home-rule for Ireland, the Queen was made to express deep sorrow for the hostility excited in Ireland against the legislative union, and resolute opposition to any disturbance of that fundamental law. The practice of organized intimidation in Ireland was deplored, and an application for larger powers to enable the Government to protect subjects in their legal rights was foreshadowed. The continued depression in British trade and agriculture was mentioned. The legislative programme embraced nearly all the subjects contained in the electoral platform of the Conservative party in the autumn. Bills were promised on the following subjects: For transferring to representative councils in the counties of Great Britain local business which is now transacted by the Courts of Quarter Sessions and other authorities, and for the reform of county government in Ireland; measures involving the consideration of the incidence of local burdens, for facilitating the sale of glebe-lands, in a manner adapted to the wants of the rural population; as also for removing the difficulties which prevent the easy and cheap transfer of land, for mitigating the distressed condition of the poorer classes in the western Highlands and islands of Scotland, for the more effectual prevention of accidents in mines, for extending the powers of the Railway Commission in respect to the regulation of rates, and for the codification of the criminal law.

In the debate on the address, Mr. Gladstone, denying that the act of union was a fundamental law of an empire that had existed for six centuries before it was enacted, intimated that he would propose, if placed in power, to grant Ireland a large measure of self-government, which was a repetition of his declarations made after the elections. The Government, which had no prospect of further support from the Parnellites, immediately gave notice of a bill dealing with social order in Ireland by the suppression of the National League. The Government were sustained on two hostile amendments, one of them against burdening the people of India with the expenses of the Burmese War. On Jesse Collings's amendment censuring the omission of a pledge in the address to promote allotments and small holdings, the Irish members joined the Gladstone Liberals and the Radicals, and the Government

were defeated by 329 votes against 258. Lord Hartington, Mr. Goschen, and a few other Liberals voted with the Conservatives.

Mr. Gladstone, on again taking office, was deserted not only by the Whigs, who had begun to fall away from the previous Radical ministry, but by many Radicals who were opposed to home-rule. Mr. Chamberlain and Mr. Trevelyan, however, though foes of separation, took office with pronounced Home-Rulers, such as John Morley and Lord Rosebery. In seeking re-election and on accepting office, Mr. Morley and Sir Charles Russell, the Attorney-General, were unsuccessfully opposed in their boroughs as being Home-Rulers. Jesse Collings, after receiving the appointment of Secretary of the Local Government Board, was unseated on account of electoral irregularities in his district.

The ministry was ostensibly formed on the basis of "examination and inquiry." The question of home-rule had formed no part of the electoral programme, but was taken up when the Liberals found that they could not attain power without an alliance with the Irish. Mr. Gladstone, convinced by experience of the futility of coercion that left a stigma on the Liberal party, was anxious to wash his hands of "separate and restrictive criminal legislation," and satisfy the national desires of the Irish people in a way to end the Irish question. In his speech to his constituents on taking office he indicated the task that he had set before himself, which was to evolve a scheme of comprehensive legislation dealing with the question of social order, the agrarian difficulty, and the demand for self-government in Ireland. In a letter to Lord de Vesci he said he was desirous of obtaining information from Irishmen of all classes and sections.

The country was impatient for information regarding the plan of legislation, but the Irish question was postponed till the close of the financial year. The Tories had already raised the cry that the empire was in danger, and assiduously stimulated the anti-Irish sentiment. They attacked the administration under Lord Aberdeen, the new Viceroy, and Mr. Morley's reluctance to carry out evictions; but the Liberals sustained the Government when this question was brought to a vote. The followers of Mr. Gladstone hoped that the country would become familiar with the idea of home-rule, and that the prestige of their leader would carry through a project that contained adequate safeguards for the preservation of the imperial union. The difficulty of uniting the Liberal party on any plan that would be acceptable to the Nationalists appeared during the discussion of the subject in the Cabinet. After the Marquis of Hartington had publicly announced his readiness to lead a secession of Liberals, it became known that Mr. Chamberlain and Mr. Trevelyan had refused to accept Mr. Gladstone's measure, though their formal resignation from the Cabinet was not announced

till just before the presentation of the home-rule bill.

The bill "to amend the provision for the future government of Ireland" was introduced on April 8. The bill provided for the establishment in Ireland of a separate executive government, solely responsible to a legislature sitting in Dublin, and with complete power to change the civil and criminal law, to deal with existing contracts, and to regulate the protection of life and property. The crown, the army and navy, foreign and colonial affairs, trade, navigation, and currency, and the endowment of religious bodies were excluded from the scope of Irish legislation, though some of them clearly were left at the mercy of Irish administration. A veto was reserved for the Lord Lieutenant, which was to be exercised subject to the advice of his Irish ministers. Another safeguard was the division of the single Assembly into two orders, voting apart in case of difference; the first order to be composed of representative peers and members, with a high pecuniary qualification, elected by persons possessing £25 a year, the second chosen by household suffrage. In the event of disagreement the measure voted upon would be suspended for three years, or until a dissolution. The Irish representation in the British Parliament was to be abolished. It was originally intended to give the Irish Parliament control over customs and excise; but the possibility of a protective tariff against British manufactures drew protests from two or three more members of the Cabinet, so that this provision was left out. The exclusion of Irish members from Westminster, therefore, violated the constitutional rule that taxation and representation go together. The Irish contribution to the imperial revenue was fixed at £3,242,000, which was considered unreasonably low by the opponents of the measure, while on the other hand Mr. Parnell denounced it as a hard bargain.

Mr. Trevelyan objected to surrendering the powers of the Government to the National League, which had organized "terrorism and outrage." Mr. Chamberlain was not allowed to state his main objection to the scheme, which embraced the "moral obligation" to buy out the landlords, and proposed an imperial guarantee for an Irish loan for this purpose, originally estimated at £120,000,000. He denounced the home-rule measure as not providing sufficient safeguards for imperial unity or for the rights of the minority, and quoted Mr. Parnell as saying in a speech delivered in Cincinnati that the Irish would never be satisfied till the "last link" that bound them to England was broken. Lord Hartington appealed for the preservation of the empire "compact and complete." He accused Mr. Gladstone of political immorality in presenting a scheme that was not a part of the "authorized programme" of the autumn elections, though that programme embraced little be-

sides the return to power under the lead of the "grand old man." Mr. Gladstone pleaded that a remedy for coercion must be found, and that his plan, though it had enemies, had no rivals, and still held the field.

The land-purchase bill, which was the complement of the Irish Government bill, was brought in on April 13. The amount required for the credit operation was in the revised estimate reckoned at £50,000,000. Every landlord was to have the option of selling his estate to a state authority, appointed by the Irish Parliament, which would transfer the land to the tenants. The money required was to be advanced on the credit of the Imperial Government by an issue of consols; the repayment, principal and interest, was to be made by the tenants in installments spread over forty-nine years; the price was to be fixed by a new land commission, on the normal basis of twenty years' purchase, but with power to diminish or increase it, or to reject the application. The rent-charge was to be paid over, together with all the proceeds of Irish taxation, to a receiver-general appointed by the British Government, an arrangement censured by Mr. Parnell as an unnecessary and offensive precaution. The repayment of the advances was to be the first charge on the whole fund, which, it was pointed out, might reduce Ireland to bankruptcy if rents were largely unpaid. The critics of the measure apprehended that, if the British Government undertook to buy out the Irish landlords, it would have to advance perhaps £300,000,000, and that the Irish tenantry would refuse to pay for the land, and leave the British taxpayers to bear the expense of giving them their farms at "prairie value."

Before the second reading of the home-rule bill the Liberal Unionists formed an association under Lord Hartington. Mr. Chamberlain, not wishing to pledge himself against every form of home-rule, held aloof from the organization. None of the seceders obtained an expression of unqualified approval from their constituents. The Birmingham caucus enjoined Mr. Chamberlain to seek a reconciliation on the basis of retaining the Irish members. The caucuses attempted to discipline the seceders into submission. Mr. Collings, as well as Mr. Chamberlain and other early leaders, parted company with the National Liberal Federation. Mr. Gladstone offered to recast the bill so as to admit Irish representatives to the British Parliament, but insisted on the principle of Irish autonomy. His concession was supposed to have won over enough of the followers of Mr. Chamberlain to carry the bill. The remodeled bill was to be presented in an autumn session. The principle of a government in Ireland, with the control of affairs specifically and exclusively Irish, was the question determined in the vote on the second reading, which took place on June 7. The Irish members extolled Mr. Gladstone, and contrasted his proposed solution of the Irish question with that

of Lord Salisbury, who would settle it with "twenty years' resolute government."

Instead of the adherence of many "wavers" among the followers of Chamberlain, fifty Radicals were persuaded by Mr. Chamberlain and Mr. Trevelyan, not merely to abstain from voting, but to vote against the bill in the second reading, as the Whigs, who followed Lord Hartington, were certain to do. The consequence was, that the vote went against the Government by a majority of 341 to 311. All the Conservatives voted, except two who were ill, but ten Liberals were absent and one Parnellite.

The ministry announced that all contentious business would be dropped, and Parliament dissolved as soon as possible, and that the new Parliament would meet as soon as the returns of the elections were completed.

Much unfinished legislation was dropped in order to wind up the session. No measure of prime importance was considered besides the Irish bills. The arms act was renewed for another year. A crofters' bill was passed which grants fixity of tenure and fair rents, to be settled by land commissioners and valuers, after the precedent of the Irish land act. Attempts were made without success to enlarge the scope of the act so as to include other classes of tenants besides the crofters, and other localities in Scotland besides the Highlands and islands. Mr. Macfarlane, the principal advocate of the crofters, declared the bill to be unsatisfactory, and moved its rejection. An international and colonial copyright bill was enacted. The medical acts were amended, the contagious diseases acts repealed, a poor-relief and a laborers bill passed for Ireland, and an allotments and small holdings bill of insignificant scope was carried after Mr. Collings left the House. Bills regulating hours of work in shops and the sale of intoxicating liquors to children were passed, but with amendments added by the defenders of personal liberty in the House of Lords. The lords voted in favor of opening museums on Sundays. A committee on parliamentary procedure decided on the limitation of hours of debate and a system of automatic closure, but requiring a two-third vote to close discussion. Parliament was prorogued on June 25, and a dissolution decree was issued the following day, and August 5 was the day appointed for the meeting of the new Parliament.

The General Election.—In a manifesto addressed to the electors of Mid-Lothian, Mr. Gladstone contrasted the two plans before the people for the settlement of the Irish question: his plan, that Ireland should, under well-considered conditions, transact her own affairs; and that of Lord Salisbury, to ask Parliament for new repressive laws, and to enforce them vigorously for twenty years. The Union in its present shape he described as "a paper union, obtained by force and fraud, and never sanctioned or accepted by the Irish nation." Among the benefits that he anticipated from the acceptance of

home-rule were "the consolidation of the unity of the empire and a great addition to its strength; the stoppage of a heavy, constant, and demoralizing waste of public treasure; the abatement and gradual extinction of ignoble feuds in Ireland, and that development of her resources which experience shows to be the natural consequence of free and orderly government; the redemption of the honor of Great Britain from a stigma fastened upon her from time immemorial in respect to Ireland by the judgment of the whole civilized world; and, lastly, the restoration to Parliament of its dignity and efficiency and the regular progress of the business of the country."

Mr. Parnell declared that, for himself and for five sixths of the Irish people, he could say that the Gladstonian plan would be accepted as final. In the elections the Liberals under the lead of the Marquis of Hartington, and to a great extent those controlled by Mr. Chamberlain, coalesced with the Tories. In some constituencies the Conservatives opposed the dissentient Liberal candidates, and won through the division in the Liberal ranks. In strongly Liberal districts they set up no opposition candidate, but gave the whole Tory vote to the Liberal seceder, balancing the ballots cast for the regular Liberal candidates. In many others the Conservatives won through the abstention of the dissentient Liberals. In the division on the home-rule bill 228 Liberals voted with the Government, and 93 voted against the bill. Five sixths of the Liberal peers and four fifths of the Liberal capitalists supported the seceders, but nineteen twentieths of the Liberal democracy clung to Mr. Gladstone. The schism in the Liberal party caused the loss of 64 seats to the Tories. The new Parliament was composed of 316 Conservatives, 74 Union Liberals, 196 Gladstone Liberals, and 84 Parnellites, giving the Unionists a majority of 390 against 280 Gladstone Home-Rulers. The regular Liberals polled 1,344,000 votes in Great Britain, the seceders 379,000, and the Tories 1,041,000. Lord Salisbury pronounced the result of the election an irrevocable verdict against home-rule. Mr. Gladstone, on the other hand, saw advantages in a policy that is affirmative, definite, and complete, over a combination that agrees only in negations. The Radicals, led by Joseph Chamberlain, were not absolutely opposed to home-rule for Ireland, but only to the scheme propounded by Gladstone. For the ultimate triumph of his ideas the defeated statesman deemed it "a mighty advantage to have a nation at our back, for a nation never dies." The popular vote in Scotland in favor of the Gladstonian policy was three to two, in Wales five to one, and in Ireland four and a half to one. On July 21, after the elections, and before the meeting of Parliament, the home-rule administration resigned. The Marquis of Salisbury, in undertaking to form a new ministry, sought ineffectually the direct co-operation of Lord Hartington and the Unionist Lib-

erals, and was compelled to select his associates entirely from the Tory party.

The Session of the New Parliament.—The newly elected Parliament assembled on August 5. In a brief speech from the throne read on August 19, the completion of the financial business of the year was denounced as the only legislation to be proposed by the Government. Lord Randolph Churchill was made Chancellor of the Exchequer, with the leadership of the House of Commons. Both wings of the Unionist Liberals sat on the Opposition side of the House, but it was understood that they would support the ministry so long as there was any danger of the restoration of a home-rule government to power. The Prime Minister said that the Government expected to restore law and order in Ireland by more vigorous working of the police system in disturbed districts; and Lord Randolph Churchill explained that they regarded Mr. Gladstone as the leader of the Nationalists, and therefore took it for granted that the agitation had become constitutional. The Parnellites and their allies among the English and Scotch Radicals at first threatened to recognize Lord Randolph Churchill as the leader of the House or to treat Lord Hartington and his followers as still members of the Liberal party, but Mr. Gladstone discouraged these tactics.

The ministers declared that they did not acknowledge that judicial rents in Ireland were too high, or that the fall in the prices of agricultural produce had caused general inability to pay. They were determined to maintain the land act as a settlement of the land question, and to enforce the decrees of courts of law. The appointment of a number of royal commissions was announced. One was to inquire into the working of the land act and ascertain how far the non-payment of rent was due to the depression of values and how far to the action of the National League. Another was to study the means of developing the natural resources of Ireland, including means of communication and arterial drainage. The Parnellites and Radicals ridiculed this system of "government by inquiry." Other commissions were appointed to study the currency question, the organization and the working of the spending departments, the condition of the ordnance, and the riots in Belfast.

Mr. Parnell moved an amendment to the address attributing the non-payment of rents to the fall in prices, condemning evictions, and deprecating the extension of the purchase system. Mr. Gladstone protested against the commissions and against schemes for the relief of the Irish peasantry, the cost of which would have to be borne by the British taxpayers. Mr. Chamberlain expressed himself in favor of a measure establishing a sliding scale of rents, varying with prices, as suggested by Mr. Parnell, and of the suspension of evictions. In the vote on the amendment the Government were sustained by 304 to 181.

An amendment touching the Belfast rioting was moved by Mr. Sexton, who threw the blame on Lord Randolph Churchill's speeches, denounced in the last Parliament by Mr. Gladstone as an incitement to "contingent treason," but it was rejected by 225 against 128 votes. Sir William Harcourt delivered a bitter speech against the Chancellor of the Exchequer. On amendments condemning the Burmese war, and on motions to reopen the crofter settlement, the Government obtained large majorities. Sir Michael Hicks-Beach met Mr. Dillon's amendment, representing the land question as urgent, with the explanation that the Government could not move in that matter without inquiry, but would demand extraordinary powers for the preservation of social order if the necessity should arise. While Mr. Gladstone was in Bavaria and Mr. Parnell absent, Sir William Harcourt and Mr. T. P. O'Connor divided the leadership of the Opposition. The Parnellites and Radicals attacked numerous items in the estimates, and prolonged the session till near the end of September.

Mr. Parnell introduced a bill to give leaseholders the benefit of the land courts, and enable fair rents to be fixed for them like other tenants. He also proposed the revision of judicial rents that had been fixed before 1885, and a suspension of proceedings that might be begun by landlords against tenants applying for an abatement, provided the latter paid into court one half of the rent due. The bill was rejected by a majority of 297 against 202. Besides the voting of supply, only two measures, which were not contested, were passed. One of them created and defined the powers of the Belfast investigating commission, and the other repealed the acts sanctioning the issue of secret-service money out of the consolidated fund, because it has been sometimes employed for party purposes.

The policy of the new Government in respect to Ireland was indicated in Lord Salisbury's speech at the Lord Mayor's feast on August 11. He said that the first duty of the Government was to free the loyal people from illegal restraints and constraints, and that, representing the mandate of the people against separation, whose motto was "social order in Ireland," the primary task was to maintain law and order.

Deputations, consisting of the Mayors of Cork, Limerick, Clonmel, and Waterford, bringing the freedom of those cities, and ladies bearing an address, signed by 400,000 Irishmen, waited on Mr. Gladstone on October 4, and elicited from him a reiteration of his declaration in favor of Irish autonomy.

In October Mr. Gladstone published a pamphlet on "The Irish Question," in which he discussed the history of the idea embodied in his home-rule scheme, and drew the conclusion from the results of the elections that the verdict of the people had been given for the principle.

Riots in Belfast.—An agitation was started among the Protestants of Ulster, soon after an unauthorized disclosure of Mr. Gladstone's conversion to the home-rule scheme startled the conservative circles of political society in England, shortly after the general election of 1885. The feeling in that province was made one of the chief arguments against the Irish Government bill in Parliament. The Unionists cried out against a remedy for the coercion of the disloyal Irish Nationalists which would necessitate the coercion by the latter of the loyal inhabitants of Ulster, who ostentatiously armed themselves and declared that they would resist by force the decrees of an Irish Parliament. Mr. Morley, in asking for the renewal of the arms act, said that its provisions applied to Ulster as well as to other parts of Ireland. The Tories prophesied that home-rule would lead to civil war, and asked if the British army was to be used to compel men who took up arms in defense of the Union to submit to the rule of a foreign government. The Liberals blamed severely the action of some of their opponents, especially Lord Randolph Churchill, in stirring up the spirit of civil strife and rekindling religious feuds.

When the question of home-rule was approaching a decision in Parliament, the hatred between the Orange and Catholic factions in Belfast began to vent itself in riot and bloodshed. On the 4th of June a succession of disturbances began, which lasted a week. A number of "rivet-boys" attacked Catholic laborers who were working on one of the docks. A youth named Curran was driven by his assailants into the water, and was drowned. This occurrence stirred up the intense indignation of the Roman Catholics of the city. The funeral on June 6 was made the occasion of a party demonstration. The procession was attacked by Orangemen, who stoned the coffin, and stabbed a man and a girl. They were driven off with stones, some of which broke the windows of a factory, but returned to the attack with re-enforcements, and were finally dispersed by the police. Stone-throwing was renewed the next day, and the mob was again scattered by the police, whom the Protestants accused of acting only against their party. On June 8, while the Protestants were celebrating with bonfires the rejection of the home-rule bill, they stoned the public house of a Catholic named O'Hare, and were answered with shots, one of which wounded a young man. The police in clearing the streets fractured the skull of one of the rioters. A guard was posted at O'Hare's house, which was again attacked the next day. The disturbers were driven back, and with them about 2,000 Protestant workmen, who were returning from work, and who took no active part in the disturbance. Protestants afterward gathered in great numbers, assaulted the police, and compelled them to take refuge in their barracks, from which they fired on the mob; and

when the people fell back, they issued forth, firing toward the places where the stone-throwers made a stand. Five men and two women were killed, and when the coroner's jury investigated their deaths they delivered verdicts of willful murder against the police. The same day a number of houses and a church were stoned by Catholics.

The Protestant press violently denounced the police for their conduct during the June riots, and at Orange election meetings inflammatory speeches were delivered. The election of Mr. Sexton as member of Parliament for West Belfast was the cause of bitter feelings on the part of the Loyalists, and an occasion for public rejoicing for the Nationalists. Yet no further outbreak occurred till July 12. Early in the morning of the Orange anniversary a mob of Protestants made a raid into the adjacent Catholic district, and were resisted by the inhabitants till the arrival of the police. During the day Catholics attempted to take down Orange arches, and were repelled by the Protestants. The next morning the "Morning News" published a rumor that the Protestants planned an attack on a Catholic church. A crowd of Protestants attacked the workmen in the establishment of a Catholic employer, and afterward wrecked and plundered three liquor-shops belonging to Catholics. Rioting and stone-throwing occurred during the day. At night an officer and a private of the police force were shot by two men who stole into the Catholic district with murderous intentions. The same evening an Orangeman was killed by the police.

On July 31 the rioting was renewed. A crowd of Loyalists, headed by a band of musicians who had returned from a Sunday-school excursion, after stoning the windows of a Catholic citizen, were charged by the police. Col. Forbes and District Inspector Townsend were attacked by the mob and severely wounded. On the following day, which was Sunday, mobs of both parties sallied forth from their respective quarters and fought a pitched battle on the border district, using fire-arms as well as stones. About thirty persons were killed. On August 2 a Protestant mob, numbering over 3,000, attacked a Catholic sodality, and were fired upon by the police, who killed one of them, and they were finally dispersed by a bayonet charge. During the disturbance the houses of several Catholics and that of a Protestant Home-Ruler were wrecked. On August 4 the fights began again, and the police used their rifles, wounding five people. A repetition of these occurrences happened on the 6th, and on the 7th houses were attacked by both factions and several people were killed by the police. Attacks on houses were renewed the following day. The police, in defending a public-house, which the mob threatened to burn, fired from the windows, and killed a woman and three men. On the 10th there was a fight between a Catholic band and

street-car stablemen, and a Nationalist was killed. In the night of August 14 Roman Catholics stoned the houses of Protestants, and the latter fired with rifles into the crowd.

On several occasions the military were called out. Attacks were made on the police in their barracks, who had to be protected from the fury of the mob by the soldiery. The aggressions, especially in the early part of the riots, proceeded mainly from the Orangemen. They attacked the police because they were offended with the Government for selecting Catholic policemen. The number of persons killed during the disturbances is not known. Each party, wishing to appear victorious, magnified the number of adversaries killed, and minimized its own losses. There were nearly 600 wounded persons treated by the physicians of the town, of whom 34 died. A number of the retail stores of the town, which are mostly kept by Catholics, were wrecked and plundered by Orangemen. The districts inhabited solely by Protestants or Catholics were not the scenes of the disorders, except in the early period of the rioting, when the police tried ineffectually to protect the shops and hosteries of Catholics in the Protestant quarter. The police were ultimately withdrawn from the Orange quarter in order to prevent continual bloodshed, and their place was taken by patrols of soldiers. The streets where the two parts of the town join and the hostile populations live near each other, sometimes at the different ends of the same street, were the principal battle-ground. Even women who were found in the district of the other faction were set upon and cruelly beaten, and in one case murdered. The police who guarded the border district were constantly stoned by crowds of men and boys, and occasionally repelled with volleys of buckshot. The hostility to the police was the cause of the continuance of the riots. A remark of John Morley in the House of Commons that the police would be able to deal with Orange disorders, and the drafting of Catholic policemen from the country districts to Belfast after the first outbreak in June, prompted the murderous feeling against the police. On August 7 the troops rescued several of the police just in time to save their lives, but were attacked by the rioters, who beat down their bayonets with stones, rescued a number of Orangemen who had been captured, and nearly recaptured the police. On August 9, 1,200 additional troops were brought to the city. The stone-throwing from behind corners or over the tops of houses, with which the riots began, was succeeded by rifle-firing, which was kept up all night long from the roofs of the houses. On the night of August 14 bands fired on each other from under cover, killing and wounding many people. Large crowds gathered in the streets, but were kept apart by the troops. When the magistrates obtained the acquiescence of the Orange leaders in the return of the police the

principal cause of the trouble ceased to operate, and after August 15 no further serious disturbances occurred. Protestant employers in Belfast discharged their Catholic workmen to the number of about 600.

Agrarian Agitation in Wales.—The Welsh farmers have complained for about ten years of distress. Prominent editors of the vernacular press have pressed their demands for a reduction of rents, and more recently for a remission of the church tithes, and public men like Mr. Bright and Mr. Trevelyan have testified their sympathy with the Welsh farmers and the Welsh laborers, whose wages are 6s. to 8s. a week with board. Inquiries addressed to the farmers by Thomas Gee, a Methodist minister, and editor of the "Baner," in Denbigh, elicited almost universal expressions of complaint that the rents were from 10 to 30 per cent. or more too high. The question whether the clergymen ever remitted any portion of the tithes on account of the distress, received not one affirmative reply from any part of Wales. The payment of tithes was felt to be the greatest grievance, because nearly all the Welsh farmers are Dissenters, and support their own churches. In 1886 the tenants, after their request for a remission of 25 per cent. had been rejected, united for a war against tithes, and agreed among themselves to pay none until their demand was conceded, and to resist legal processes by the same means that had been successful in Ireland. The argument that the reduction of the tithes or their total abolition, which was the height of their desire, would have no effect on their position, because the rents would be so much increased, made no impression on them. The tithe war was not, however, carried to extremities, because neither side showed the same determination, nor were the farmers of Wales able to carry out the same organized resistance as in Ireland. In some counties the tithe-owners, after distraining the goods of some of the farmers in order to vindicate their legal rights, compromised by remitting 10 per cent. of the tithe-charge and paying the costs of the legal proceedings. In Flintshire and elsewhere the conflict was continued, chiefly with the Board of Ecclesiastical Commissioners, who are extensive tithe-owners, and who would not join the rectors of the county in offering an abatement of 10 per cent. The principal outcome of the struggle was the conviction formed in the minds of leading English politicians that the tithes should be assessed on the landlords; but the aim and wish of the Welsh is to have the Church of England disestablished in Wales.

Highland Crofter Troubles.—The Crofters were dissatisfied with the land act passed for their relief, and still more with the composition of the land commission intrusted with the readjustment of their rents, alleging that the commissioners were the nominees of the landlords.

Serious disturbances occurred on the island of Tiree, one of the Hebrides, belonging to the

Duke of Argyll. For thirty years or longer the process of dispossessing the poor crofters, and replacing them with a more profitable class of tenant farmers, has been carried out on the estates, as in other crofter districts. The crofters were encouraged to open resistance to evictions after the passage of the crofter act, which recognized their right in the soil. When the police proved powerless to protect and aid court officers in executing legal writs, the Government in July sent a detachment of marines to the island to preserve order. The open disturbances began when a former member of the local land league took the lease of one of the consolidated farms. The leaguers attacked his house, broke up his furniture, drove off his cattle, and apportioned out the farm among crofters. The Argyllshire authorities sent a *posse* of fifty men to deal with the disturbers, but when they reached the disputed land, the crofters told them that they would pay rent for the farm, but would resist ejectment to the last drop of their blood. The police force then returned to the mainland as soon as they could, the steamer that brought them having already departed, in order to escape injury from the angry islanders. As the whole population of the county was in sympathy with the crofters, there was no way of enforcing the legal rights of the landlord without employing military force. Accordingly, 200 marines, with 45 constables, were sent to the island. The crofters removed their cattle from the disputed farm, but declared that they would return as soon the marines left the island. Five of the crofters were arrested, and sentenced to six months' imprisonment on October 20 for resisting the sheriff when engaged in the work of eviction. Four others were given a four-months' sentence. In Skye the passage of the crofters act was followed by extensive evictions on the estates of Lord Macdonald, Lieut.-Col. Fraser, and other landlords, and troop-ships were sent to the island in October to support the officers of the law with military action if resistance should be offered.

Labor Agitation in London.—The royal address of Parliament mentioned the continued prevalence of industrial distress. During the winter of 1885-'86 there were an unexampled number of unemployed in the metropolis, and advocates of the workingmen, especially the leaders of the Social-Democratic Federation, demanded that something should be done by the Government to relieve their suffering.

On Feb. 8, 1886, a monster meeting of unemployed was held at Trafalgar Square. An open-air meeting had been called by the London United Workmen's Committee, a political organization connected with the Conservative party. The Social-Democrats denounced this hostile and rival organization, and summoned the laborers of London to assemble and exhibit their true sentiments at the same day and place. The Chief Commissioner of Police, Sir

Edmund Henderson, was warned by the United Workmen that the Social-Democrats would attempt to seize the platform, and detailed a reserve force of 593 policemen to be in the neighborhood within call, besides the 66 constables on duty in the square. On the day appointed an enormous concourse of people gathered, and harangues were delivered from different platforms by the speakers of both parties. While the meeting was still proceeding, a mob of roughs, instead of returning to the East End, marched westward through Pall Mall, St. James's Street, Piccadilly, Arlington Street, and other thoroughfares of the West End. The crowd, numbering from 3,000 to 5,000, stopped in front of the Carlton Club, and, after shouting and listening to a speech from one of their number, stoned the windows. In Piccadilly and St. James's Street they broke many windows. They became more destructive as they passed along, and, when they reached Oxford Street, many shops, which were largely deserted by the frightened inmates when the plate-glass windows were crushed in, were plundered. A part of the crowd remained in Hyde Park, and listened to speeches. The rest, numbering about 1,000, were finally stopped in Oxford Street and dispersed by a small squad of police. The people of London learned to their consternation that such riot and pillage could be carried on for two hours in the aristocratic part of the city without the police authorities in Scotland Yard even knowing of it. There were no arrangements for employing the telegraph in such emergencies, the single policemen who saw the mob pass by continued at their posts, and even a large body that had been set to guard Lord Salisbury's house allowed the rioters to pass by within sight, not venturing to desert their special duty. In consequence of these disclosures, Sir Edmund Henderson was obliged to resign, and Sir Charles Warren was appointed in his stead.

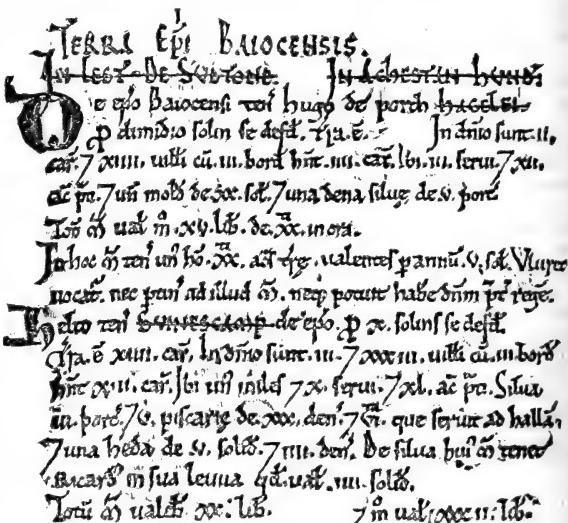
After the experiences of February 8, the shopkeepers of London closed their iron shutters or boarded up their windows whenever they apprehended a Socialist demonstration. When the Lord Mayor's feast approached, the Social-Democrats announced that the unemployed workingmen, to emphasize their demand for relief work, would take part in the procession. They promised that if the police could be kept out of the way they would themselves answer for the preservation of order. When the police authorities forbade this demonstration they finally accepted the decision, but announced that they would hold a mass-meeting of the workers, employed and unemployed, at Trafalgar Square on the same day. Sir Charles Warren refused to allow the meeting, and on the day appointed stationed in and around Trafalgar Square the largest force of police ever gathered in one locality. But the workingmen came in great numbers, and at the last moment the Government concluded to al-

low the meeting to take place. Cavalry assisted the police in guarding the Lord Mayor's procession, and forced back the crowd on the side of the square where the procession passed in order to prevent a possible riotous attack. Some of the police were rudely handled by the crowd. After the procession went by, Socialistic speeches were delivered at Nelson's Column. The police were about to attempt to clear the square, but received the command to allow orderly speaking. The assemblage after a number of speeches adjourned to Hyde Park, where speaking was resumed. The police guarded the entire route in sufficient force to prevent rioting.

The French Fisheries in Newfoundland.—By the Treaty of Utrecht, when Newfoundland was ceded to Great Britain, the French reserved a part of the shore for their fishermen to catch and dry their fish. When the Treaty of Versailles was signed in 1783, the British Government agreed not to disturb the fishery rights of the French. Afterward the French authorities complained that British fishermen established themselves in the part of the island reserved for their own fisheries. During the wars of 1793–1815 the French were excluded from the fishing, and British fishermen settled on the coast; but by an act of Parliament, passed in 1824, they were removed. When Newfoundland obtained representative institutions in 1834, the question arose whether the colony had a right to include the French shore in its electoral districts, and was variously decided by the authorities of Downing Street down to 1873. When the colony appointed magistrates, the French Government was assured that the French treaty rights would not be interfered with. The French fishermen have not been subjected to the colonial laws, but have enjoyed an extra-territorial immunity. The colonial authorities have passed various enactments interfering with the French fishermen, and finally attempted to collect revenue duties from them. The French Government complained and demanded a settlement, reaffirming the rights they had possessed by treaty for one hundred and seventy years. The English Government was unable to induce the colonists to recognize the claims of the French, and prolonged the negotiations that were begun until the French broke off the useless conferences. There were protracted negotiations in 1878. In 1881 another mixed commission was appointed, but no agreement was arrived at. In 1883 a new commission was appointed, in which Clare Ford and E. B. Pennell represented the British Government. They met

their colleagues in Paris in January, 1884, and ended their labors on April 26, when an agreement was signed. The British commissioners then went to Newfoundland to induce the colonial authorities to accept the agreement; but the Newfoundland government insisted on modifications. The French agreed, on the condition that they should receive concessions in other quarters, particularly the abrogation of the agreement of 1847 with respect to the islands to the leeward of Tahiti, which the French Government desired to annex. An agreement was reached with Lord Salisbury, and signed on Nov. 14, 1885, subject to its acceptance by the colonial authorities and its ratification by the two Governments, while the previous agreement of April 26, 1884, was canceled. The main features of the new arrangement are that the French Government will not object to the establishment of different industries on the coast, provided that the French fishery rights receive no prejudice; that the police of the fisheries is to be managed by the war-vessels of France and Great Britain; that the French Government abandons the salmon-fisheries in the rivers; and that French fishermen will be exempted from paying duties on articles necessary for their fishing.

Domesday Celebration.—The eight-hundredth anniversary of the completion of "Domesday Book" was celebrated in London, on October 25 and 26. The celebration was conducted under the auspices of the Royal Historical So-

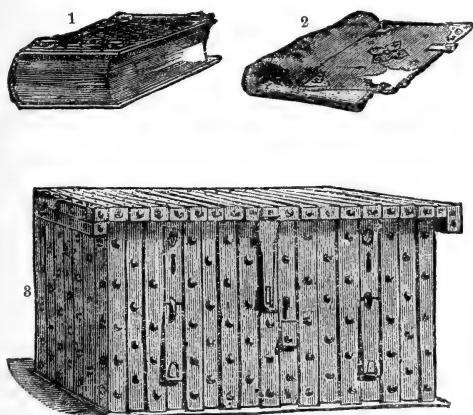


FAC-SIMILE OF PART OF A PAGE OF THE DOMESDAY-BOOK.

society, by a committee, of which Lord Aberdare was chairman. "Domesday-Book" is the result of an order issued by William the Conqueror in 1085, for a complete statistical survey of England, comprising the names and

property of all land-owners, and the number of serfs, cotters, and other persons employed, or dwelling on the demesnes. The meaning of the name "Domesday-Book" is obscure. The book itself comprises two volumes, which were exhibited on the occasion of the celebration. The first volume is written on 382 large folios of vellum, in a small and clear hand, in abbreviated Latin; the second is a quarto, written on 450 folio sheets in larger characters. The book was first deposited in the Royal Treasury at Winchester, but was afterward removed to the Exchequer at Westminster, where it was preserved in an iron chest, with three locks and keys. Thence it was taken to the Chapter-House (1696), and thence to Fetter Lane, where it is now preserved in the house of her Majesty's Public Records.

of charters mostly relating to Kent; "Pope Nicholas's Taxatio"; the "Testa de Nevill"; the "Book of Aids"; "Valor Ecclesiasticus," and a variety of registers, cartularies, etc. There were also exhibited the iron chest in which the Domesday volumes are kept, the original wooden boards in which the large volume was bound, and a number of wooden "tallies," which were in use in the Exchequer until the reign of William IV, for the purpose of keeping the public accounts. The proceedings on the first day of the celebration included the reading of a paper by Mr. Hubert Hall, on the "Official Custody of the Book of Domesday." On October 26 the members of the committee and their friends gathered at the British Museum, in the King's Library, and inspected the books and manuscripts



1, Little Domesday-Book. 2, Old binding of Domesday-Book. 3, Treasure-chest in which the book was kept.
4, Domesday-Book.

The eight-hundredth celebration opened at the Public Record Office on the afternoon of October 25, in the presence of and assisted by Lord Aberdare, President of the Royal Historical Society, Mr. John Evans, F. R. S., President of the Society of Antiquaries, and a number of other friends and supporters of the movement. The large octagonal searchroom was filled by a distinguished company of ladies and gentlemen, invited guests. In the center of the room were exhibited the two volumes of "Domesday-Book," and on tables about the room were ranged the various subsidiary volumes bearing on the same subject, loaned by the public bodies to which they belonged. These included the "Abbreviatis" of Domesday (of the date of Henry I); the "Breviate" (a short abstract of the same); the "Boldon-Book," relating to the Palatinate of Durham; the "Red Book of the Exchequer"; the "Black Book of the Exchequer," and the smaller book of the same; the series of Pipe Rolls from the reign of Henry I; the "Cartæ Antiquæ," transcripts

cognate to the subject under consideration. These included the "Boldon-Book," already mentioned, a register of the Cathedral and Priory of Durham, including a survey of the See and its possessions, made by order of Bishop Pudsey, in 1183; the cartulary of the Priory of St. Swithun, Winchester, containing a collection of royal and other charters in Anglo-Saxon and Latin, with details of the boundaries of lands from the reign of Ceadwalla, A. D. 688, to that of Edward the Confessor, and with a few additions made under the early Norman kings; the cartulary of Westminster Abbey; that of the Abbey of Evesham; that of the Abbey of Abingdon; the Exon Domesday, containing surveys of the five southwestern counties of England, and apparently an exact transcript of the original returns from which the Exchequer Domesday was compiled; the "Inquisitio Eliensis," lent by the Master and Fellows of Trinity College, Cambridge; the "Domesday Monachorum," a collection of muniments, customs, etc., of Christ Church, Canterbury; the

"Winton Domesday" and the "Liber Niger" of Peterborough; the "Registrum Honoris de Richemund," and other cartularies, etc.

Mr. Maunde Thompson delivered an address, which served as a running commentary upon these curious relics, their purpose, and influence. A vote of thanks to the authorities of the British Museum was proposed by Lord Aberdare and seconded by Hon. Edward J. Phelps, United States minister, who made a few remarks on the occasion, saying that his people across the Atlantic took an equal pride and interest in the Book of Domesday and its associations with their English brethren. In the evening of this, the second day of the celebration, there was a meeting in the great hall of Lincoln's Inn. Here, papers were read by Stuart Moore, on the purport, drift, and real meaning of "Domesday-Book," and by J. Horace Round, on external references and testimonies to its contents. Mr. Moore expressed his belief that the "Domesday-Book" was intended by Wilham the Conqueror, not as a survey of the acreage of his new kingdom, but as an estimate of its resources, and claimed for it the character of a most wise, just, and statesmanlike measure. The hope was expressed that one result of the present gathering would be the production of an exhaustive bibliography of all works published on the subject. After some discussion, the meeting was brought to a close, and the celebration ended.

GREECE, a kingdom of Southeastern Europe. The Constitution of 1864 lodges the legislative authority in a single Chamber of 245 members, including 35 from the provinces annexed in 1881, elected for four years by direct suffrage. The King is George I, born Dec. 24, 1845, son of the King of Denmark, who was chosen by the National Assembly in virtue of the protocol signed at London on June 5, 1863, by France, Great Britain, and Russia. The ministry, constituted on May 21, 1886, is composed as follows: President of the Council, Minister of Finance, and Minister of War, C. Trikoupis; Minister of Justice, D. S. Voulpouli; Minister of the Interior, C. Lombardos; Minister of Worship and Public Instruction, P. Manetas; Minister of Foreign Affairs, S. Dragoumis; Minister of Marine, G. Theotokis.

Area and Population.—The area of the kingdom is 25,111 square miles. The population, according to a census taken in 1879 for the older provinces, and one made in the annexed portions of Thessaly in 1881, is 1,979,561, comprising 1,040,526 males and 939,035 females. The city of Athens in 1884 contained 84,903 inhabitants. The number of births in 1882 was 43,157; of deaths, 32,194; of marriages, 11,186; surplus of births over deaths, 10,963. Only about one quarter of the Greek nation reside in Greece. In the Ottoman Empire there are 3,500,000 Greeks in European Turkey; 2,000,000 in Asia Minor; and 400,000 in Crete, Cyprus, and other islands.

Agriculture.—About one half of the people of

Greece are directly engaged in agriculture and sheep-raising. The land is chiefly in the hands of a few proprietors. There are about 250,000 acres under tobacco and cotton; 1,000,000 under grain-crops; 1,000,000 fallow; 250,000 in vineyards; 125,000 devoted to currants, or Zante raisins; 325,000 to olives; 38,000 in orchards and gardens; 1,000,000 in meadows; 5,000,000 pasture; 1,500,000 forest; and 3,000,000 waste—making in all, 18,490,000 acres. The old provinces produce on an average 34,000,000 bushels of wheat and 21,700,000 bushels of Indian corn. The fertile new province produces 21,700,000 bushels of wheat, 11,628,000 bushels of oats, and 5,750,000 bushels of barley. The currant-crop of 1886 was about 125,000 tons.

Navigation.—A large part of the commerce of the Black Sea and the eastern Mediterranean is carried under the Greek flag. The merchant navy in 1886 consisted of 3,141 sailing-vessels of 225,224 tons, and 72 steamers of 36,272 tons. The number of vessels entered at Greek ports in 1883 was 6,872, tonnage, 2,061,682; the number cleared, 4,874, tonnage, 1,991,865.

Railroads.—There were, in 1886, 523 kilometres of completed railroad, and 97 kilometres under construction.

Posts and Telegraphs.—The number of letters forwarded in 1884 was 5,449,894; of postal-cards, 151,164; of registered letters, 281,128; of newspapers, 3,892,166. The receipts of the post-offices were 954,477 drachmas; the expenses, 802,120 drachmas. The length of the state telegraph lines was 5,104 kilometres; of wires, 6,293; of cables, 1,382. The number of dispatches was 457,602, exclusive of 170,091 international messages.

Finances.—The budget for 1886 makes the total revenue 82,674,068 drachmas, or francs, of which 16,108,500 drachmas are derived from indirect imposts, consisting of the tithes, or land-tax, a house-tax, a cattle-tax, a license-tax, etc. The yield of the indirect taxes is calculated at 46,277,500 drachmas, of which 21,700,000 drachmas come from customs, 9,200,000 drachmas from stamps, 7,200,000 drachmas from duties on spirits and tobacco, and 8,177,500 drachmas from duties on petroleum, matches, etc. The total ordinary expenditure for 1886 is calculated at 88,047,999 drachmas, of which 33,062,298 drachmas are required for the public debt, and 22,997,875 drachmas for the army and navy. There is a foreign debt of 39,567,320 drachmas, various internal loans amounting to 308,875,206 drachmas, and unfunded debts amounting to 79,718,676 drachmas, making the total interest-bearing debt on Jan. 1, 1886, 428,156,202 drachmas. The amount of paper money still outstanding was 27,787,302 drachmas.

The Army.—The armed force comprises 32,415 land-troops of all ranks, with 3,536 horses and 72 guns.

The Navy.—The fleet in 1886 consisted of 2 ironclads, 1 wooden frigate, 2 gunboats of the

first class, 8 other gunboats, 4 steam-corvettes, 4 cruisers, several torpedo-boats, and about 20 other vessels of various kinds, the *personnel* comprised 2,135 men.

Mobilization.—After the Eastern Roumelian revolution of September, 1885, the Greek and Servian Governments both called out their troops with the intention of securing a compensating aggrandizement of territory, but both refrained from action at the favorable moment, when there were not 30,000 Turkish troops in Europe, expecting to secure their demands by the interposition of the great powers. Turkey moved troops from Asia and mobilized her *reduits*, and soon had 200,000 troops to guard both frontiers. The Servian invasion of Bulgaria, and its repulse, left only the Greek frontier to be defended. From October, 1885, the Greek Government kept in Thessaly an army nominally 70,000 strong, but in actual numbers not above 40,000 or 45,000. The effort involved the Government in financial difficulties. The mortality among the troops from the hardships of camp-life and an unusually inclement season was fully 10 per cent. during the winter. The mobilization was not effective, and was only intended to make the greatest possible military show, in order to stimulate the action of the powers. The Greeks demanded only the frontiers that had been promised them at the Congress of Berlin, and that were indicated in the treaty; yet they found none of the cabinets disposed to give diplomatic support to their claims. A war spirit was kindled in the nation, which was inflamed by the politicians in control of affairs for the sake of exciting the sympathies of Europe. When the time for military action had been allowed to pass, Delyannis did not dare to order a disarmament for fear of sacrificing his popularity. The Greeks themselves were not aware of their military weakness, but imagined that their courage and strength of purpose would atone for disparity of numbers. The Government had even sold transports in order to procure means to make a more imposing military demonstration, which deceived no one in Europe but the Greeks themselves. The territory claimed by Greece by virtue of the Treaty of Berlin consists of the province of Epirus, including Janina and Metzovo. Epirus contains about 370,000 Greek Christians and a small minority of Mussulmans who are also Greeks in race and language. Janina has a population of 105,000 Greeks.

Interference of the Powers.—In the beginning of January the Greek Government addressed a circular note to the powers, saying that, in deference to the exhortations of the powers, Greece had remained quiet for three months, but that the loss of thousands of Greek nationality in Eastern Roumelia was keenly felt in Greece, and praying that the powers, if they concluded to confirm a change in the arrangements decreed by the Congress of Vienna, would secure to Greece the boundaries promised in the Berlin Treaty.

On January 11 the six great powers presented an identical note at Athens, Belgrade, and Sofia, proposing a simultaneous disarmament. The Greek reply was a refusal to disarm. The show of warlike preparations was renewed, although a loan of 100,000,000 francs that the Government sought to raise in Europe found no takers, and others of 35,000,000 and 30,000,000 francs, for which it appealed to patriotic Greeks and to the bankers of the country, were but charily subscribed to. In addition to the 70,000 effectives that had been mobilized, new classes were called out, consisting of youths eighteen and nineteen years old, numbering 18,000. The Greek fleet was made ready for service, and an intention was expressed of issuing letters of marque to privateers. These naval preparations excited the apprehensions of Lord Salisbury, who proposed to the powers to prevent any naval action of Greece against Turkey. He determined not to wait for concerted action, and, having consulted the German Government and obtained the assurance of its approval and co-operation, telegraphed to Sir Horace Rumbold, British minister at Athens, to inform Delyannis of the diplomatic steps he had taken, and of the determination of Great Britain to prevent by force a naval conflict. Apart from considerations of the general peace of Europe, the English were commercially interested in preventing privateering and naval warfare in the eastern Mediterranean. Sir Horace Rumbold had an interview with Delyannis on January 23. After communicating the dispatch, he warned the Greek minister of the danger of his course, and urged him to resign rather than run the risk of bringing upon his country such a disaster as war, which would result in defeat and national ruin, and probably be followed by revolution and the overthrow of the dynasty. M. Delyannis spoke of his duties to Hellenism, and said that his policy was that of the entire nation. He said that as a constitutional minister he was unable to make any promises on his own responsibility that would stop the presentation of the threatened collective note. The next day the fleet, consisting of 2 iron-clad and 2 other corvettes, 9 gunboats, and 19 torpedo-boats, sailed out of the harbor of Salamis with sealed orders, under the command of Admiral Canaris.

On January 25 the Porte sent a circular telegram to the powers, calling attention to the sacrifice of territory Turkey had made on the advice of the powers, to secure good relations with Greece, and saying that the undeserved provocation of Greece had necessitated burdensome military preparations that required compensation. The powers were requested to induce Greece to disarm, otherwise Turkey would be compelled to take active measures.

On January 26 the collective note of the powers was presented at Athens. It said that, in view of the absence of any legitimate motive for war against Turkey on the part of Greece,

and of the prejudice that would result to the interests of nations from such a war, no naval attack of Greece against the Porte will be permitted. British and German ironclads were already on the way to Greek waters. The other powers immediately sent naval squadrons. They all assembled in Suda Bay, on the coast of Crete, with the object of preventing an attack on that island by the Greek fleet. The Greeks had started an agitation among the Christian population of Crete, and had obtained the signatures of a majority, praying for annexation to Greece. Yet the Cretans had not the same crying grievances that formerly drove them to insurrection, and took little interest in the movement. On January 31 the second identical note of the powers was presented to the Greek, Servian, and Bulgarian Governments. It declared that the powers would take action against the state that should break the peace, and would allow it to derive no territorial advantage from a war.

The change of Government in England raised hopes of more sympathetic treatment from Mr. Gladstone and Lord Rosebery; but those noted Philhellenes made it clear to the Greek ministers that they would adhere to the policy of their predecessors. In his reply to the powers, dated February 2, M. Delyannis disclaimed for the Greek Government all responsibility for an eventual conflict, and declared that it would regard any interference with the free disposal of the Greek naval forces as incompatible with the independence of the state. The naval demonstration of the powers was regarded by the Greeks as a *brutum fulmen*. Trikopis, though opposed to a war with Turkey under the existing circumstances, not believing that the national honor required the Hellenes to begin a war that would certainly end disastrously, considered that it would be a dishonorable sacrifice of national independence to pay any attention to the threats of the powers, and that the Greek naval vessels ought to resist if the ironclads interfered with their movements.

The Greek Government called two more classes of reserves to arms in the middle of March, raising the effective to the nominal strength of 100,000. The men called out were those aged twenty-eight and twenty-nine years. It was the season when their labor was most needed. The internal situation was already intolerable. Most of the Government officials had been for months without pay, and there was much suffering everywhere. The real intention of the order was probably to impel the powers to use coercion and enable the ministers to demobilize under the compulsion of *force majeure*, and thus preserve the national honor and their own reputations. The Turks had an army of 120,000 men écheloned along the frontier, with about an equal force of reserves and re-enforcements. They had industriously constructed earthworks and roads and constantly practiced manœuvres, while the Greeks had neglected their drill and had no

fortifications completed. The ministry summoned the Assembly in the latter part of March to enable them to call out the classes of reserves from thirty to thirty-two years of age, and to issue a forced loan of paper money. In April the ministry obtained a majority of 42 on a vote of confidence. On April 24 the Government obtained a loan of 20,000,000 francs, on the concession of certain monopolies.

The commanders reported that the army was not prepared to fight. Gen. Petmezas estimated that 40,000 men, which was about the strength of the army in the field, would be sufficient for a purely defensive campaign, but that 40,000 more would be required for offensive operations. The last calls for the reserves had not been willingly responded to, only 9,000 out of 19,000 of the class of the age of twenty-nine having presented themselves. Attempts to arrest the recusants were resisted by force by the women of their villages. On April 17 the Minister of War, M. Mavromichaelis, who was the chief of the war party, and obnoxious to his colleagues because he was the only one among them earnestly in favor of war, resigned because the bulk of the Ministerial party voted for an amendment to his army bill, giving commissions to non-commissioned officers who had been in the military schools, a proposition which was rejected with the aid of the votes of the Opposition. After passing the army bill, the Chamber closed its session. Delyannis announced in the Chamber that no attack against Turkey that was contrary to the law of nations would be undertaken. In answer to a comminatory note of the powers demanding that Greece should observe the wishes of the powers, he declared that Greece had complied with their wish and had in no way broken the peace, but must insist at the least in having the frontier mentioned in the Berlin Treaty, and would follow the policy previously avowed and soon have an army of 110,000 men under her standards. Delyannis still hoped for diplomatic success from the want of unanimity among the powers. He had insulted the ministers of Great Britain, Italy, and Germany by causing to be published distorted accounts of confidential interviews.

The French Government was opposed to the attitude of menace, and joined the other powers in their acts reluctantly. Russia also held aloof until the last moment. M. de Freycinet did not venture to take a stand in favor of the territorial claims of Greece. The French minister at Athens, Count de Moûy, was the only representative of a great power who remained on cordial and confidential terms with the Greek premier. When, after the passage of the army bill, the powers contemplated the employment of the international fleet to compel disarmament, which the Porte in another threatening circular urged them to do, the French minister telegraphed instructions to Count de Moûy to seek to obtain promise of disarmament from Delyannis, as it would be

less of a sacrifice of national pride to yield to the advice of a friendly power than to menaces. The French representative prevailed on the Greek minister to make the promise, and M. de Freycinet telegraphed the fact to the different cabinets. The Continental powers, however, were unwilling to allow France to play the part of the special protector of Greece and make a separate agreement with the Porte. They returned the answer that the assurance came too late and was not sufficiently definite.

Blockade of the Greek Coast.—On April 26 a collective note conveying an ultimatum was presented at Athens. It demanded the demobilization of the Greek army within a week; otherwise Greece would be answerable for the consequences. Delyannis declared in a circular note that Greece would not disarm under compulsion, but was ready to carry out her promise to France. In answer to a deputation of citizens, Delyannis averred that he had promised the French minister to disarm only on the condition that the Greek question should speedily be settled by diplomacy. Freycinet demanded a retraction of this statement, and declared that the promise was unconditional. France then joined the other powers again, renounced separate action, and warned the Greek Government of the consequences of further resistance. On April 29, M. Delyannis replied to the ultimatum that Greece would not disturb the peace, and would gradually disband her forces within such time as the operation could prudently be carried out. The powers pronounced the answer unsatisfactory, and on May 6 demanded a specific statement of the periods required for demobilization. Delyannis replied that he had nothing to add to his former note. The representatives of the powers then left Athens, and a pacific blockade of the coast of Greece was declared. The German, Austrian, Italian, and Turkish ministers departed in a demonstrative manner, that was not followed by the English representative; the Russian minister was absent in St. Petersburg, and the French minister was summoned to Paris as though on ordinary diplomatic business. In like manner the German and Austrian squadrons steamed out of Suda Bay in regular order, the English vessels in laxer fashion, and the French fleet took no active part in the blockade, which was carried out by the German, Austrian, British, and Italian squadrons, joined later by the Russian iron-clads. The blockade extended to all the ports on both sides of Greece.

The presentation of the ultimatum had been accompanied by a naval demonstration. M. Delyannis was on the point of yielding to the counsels of M. de Moûy, and making a beginning of disarmament, but after the premature appearance of the foreign fleet in the harbor of Phalerum, and more decidedly after receiving the ultimatum, he declared that he could not yield to foreign dictation. He was willing to resign, but Trikoupis held still stronger

views on the question of coercion, and avowed that he would have to retract the concessions already made, and convene the Assembly. The reply of Delyannis vaguely promising gradual disarmament made the virtual withdrawal of the ultimatum a condition.

Change of Ministry.—M. Delyannis adhered to his decision not to yield to the menaces of the powers, and on May 10 resigned, in order that some one else might relieve Greece of the embarrassments into which he had brought her. Trikoupis could not undertake to reverse the policy that had been approved by the representatives of the nation, nor would the powers have accepted an engagement from him not thus ratified. The only course was to form a provisional ministry that would reassemble the Chamber, and endure the evils of the blockade until a new policy could be evolved in the legislative hall, and a definite answer could be given by a stable ministry, possessing a national mandate, to the demands of the powers. M. Valvis, who was not a politician, undertook the task, and formed a cabinet on May 12. The Chamber was convened, and elected for its president on May 21 the candidate of the Trikoupis party by 139 votes to 78 given for M. Delyannis. The Valvis ministry then resigned, and M. Trikoupis accepted the office of Prime Minister.

Collision on the Frontier.—The day after the vote in favor of Trikoupis and a peace policy, some of the Greek troops on the frontier attempted to precipitate a conflict with the Turkish army. A volunteer body of mountaineers called the Ezvones, who have a high reputation for courage, began to fire on the Turks along the line from the ravine of Zevia to the sea. Trikoupis, immediately upon taking office, gave orders to General Sapunzachi, the commander-in-chief at Larissa, to stop the fighting. He sent word to the *chargés d'affaires* at the different legations that the firing was unauthorized. The Turkish *chargé d'affaires* informed his Government of the true state of things. The following day the attack was resumed, and the Turkish outposts were driven back, but wherever the fire was galling the Turks executed counter-attacks. A number of small fights were developed between Analipsis and Koutra. At Gortzvali the Greek intrenchments were twice assaulted, and reinforcements were brought up to carry the position. At Koutra, Major Lory attempted, with two companies, to drive the Turks from a height, but he was outflanked, was badly wounded himself, and nearly all of his men were killed, wounded, or taken prisoners. Major Staikos, who witnessed the fight, led a counter-attack on the Turkish base. At this stage the fighting was stopped, late in the afternoon, by orders of General Sapunzachi, and soon white flags were displayed all along the line, and communication was established between the Greek general and Eyub Pasha, who commanded the Turkish forces. The lat-

ter had received orders from Constantinople to take the offensive if the attacks were resumed, and was prepared to advance 30,000 or 40,000 men, and cut off a large part of the Greek army from the base of supplies. The Greeks lost about 200 men, and the Turks a smaller number. The Turkish Government did not press for an investigation of the origin of the collision, not desiring to complicate the negotiations for disarmament. The Turkish and Greek commanders met, and arranged for a simultaneous withdrawal of their troops from debatable ground. The Greek Prime Minister had already issued orders for the disbandment of 50,000 men, and ordered the fleet to unload its ammunition and lie up at the arsenal.

When the news of fighting at the front reached Athens, the largest of the many demonstrations in favor of war took place before the King's palace, but the crowd was dispersed by the police, which, as well as the army, had been placed in the hands of friends of peace by the transitional ministry. Delyannis expected a revolution, which he did his best to bring about by resigning when it was impossible to select a constitutional successor. His resignation was the result of an interview with the King, who urged him to declare either for war or disarmament, offering, if the decision should be for war, to take command of the troops in person. The factitious nature of the war fever was shown in the sudden melting away of the war party in the Assembly and in the country as soon as the control of the police, the telegraphs, and the press passed into other hands.

M. Trikoupis, while proceeding to demobilize the army, would hold no communication with the powers concerning that step, still holding to his constitutional objections to accepting foreign dictation. The Turks and Greeks both carried out their engagements to withdraw the forces, in a jealous and suspicious manner. The Porte sent orders to Eyub Pasha to release the Greek prisoners, but they were not carried out. On May 31 the Porte complained to the powers of the dilatory manner in which the Greek disarmament was executed. It transpired that the refusal to liberate the Greek prisoners was owing to the continued occupation by the Greeks of Zygos, a post belonging to Turkey. The prisoners were taken to Salomica, and there set free about the middle of June.

On May 31, M. Trikoupis addressed a circular note to the powers, in which he explained the measures taken for demobilization. On June 7 the representatives of Great Britain, Austria, Germany, Italy, and Russia signed a note announcing the raising of the blockade, which took effect the same day.

Electoral Reform.—Trikoupis in June carried through a bill reducing the number of deputies from 246 to 150, by increasing the size of the constituencies to 15,000 instead of 10,000 inhabitants. The law also established *scrutin de*

liste, providing that, instead of each eparchy, or electoral district, electing its representative separately, all the deputies of a *nomos*, or province, shall be chosen on one ticket. In order to lessen the influence of the army in politics he caused to be enacted a law depriving military officers, while serving in the Chamber, of the right of seniority in promotion. After authorizing a gold loan of 19,000,000 francs to cover the floating debt left by the last ministry, and passing other important measures, the Assembly, in the latter part of June, adjourned till November.

One of the first executive acts of M. Trikoupis, after arranging the question of disarmament and the disputes with Turkey, was to re-establish the legations at the capitals of the great powers, which M. Delyannis, on the ground of economy, had abolished a year or two before.

Dissolution of the Chamber.—On November 16 a deputy demanded that the correspondence in relation to the collision on the frontier should be laid before the Chamber. Trikoupis refused, and asked for a vote of confidence, whereupon the Opposition left the hall. On the 18th the Government dissolved the Chamber, a proceeding that the Delyannis party denounced as unconstitutional. New elections were appointed for Jan. 16, 1887.

GUATEMALA, a republic of Central America, covers an area of 121,140 square kilometres, and had, in January, 1885, a population of 1,284,604. The number of deaths in 1885 was 25,747, while there were born 63,689 children, 18,327 of whom were white and 45,360 Indian. On Jan. 1, 1886, the population had increased to 1,322,544.

Government.—The President of the Republic is Gen. Manuel Libandro Barillas. The Cabinet was composed of the following ministers: Foreign Affairs, Dr. Don Fernando Cruz; Public Instruction, Don Antonio Batres; Interior and Justice, Don Salvador Falla; Public Works, Don Juan J. Rodriguez; Finance, Don Manuel Cárdenas, the President taking charge of the Ministry of War. The *chargé d'affaires* in the United States is the Consul-General at New York, Señor Don Enrique Torriello. The United States Minister to the Central American republics collectively (resident in the city of Guatemala) is the Hon. Henry C. Hall.

Military.—The strength of the regular army is 2,180 men, and that of the militia is 33,229. Under management of the War Department a veterinary school is to be opened at Guatemala.

Finances.—In June, 1886, the home debt amounted to \$6,000,000, and the foreign debt, bearing 6 per cent. interest and 1 per cent. annual payment from the sinking-fund, to £800,000. In order to pay arrears of salaries and current expenses, the Government issued treasury notes in June, 1886, to the amount of \$500,000, contracted in August a loan of \$200,000 with Branlio Morales at 85, and made another issue of \$200,000 treasury notes in September.

In every case provision was made for a sinking-fund, derived from customs and other revenues, so as to extinguish similar engagements.

The Chamber of Deputies simultaneously passed the Government bill (to become operative from July 1, 1886) regulating the home debt, the liquidation to terminate on December 3 of the same year; the Government to issue due-bills for the claims, after they shall have been established and admitted by a committee of five appointed by the Chamber; such claims to be divided into three classes: 1, to bear twelve per cent. interest per annum; 2, nine per cent., and 3, six per cent.; such due-bills to be canceled by a sinking-fund toward which (dating from Jan. 1, 1887) fifty per cent. of the import duties shall be assigned until the total extinction of the debt. The financial distress in Guatemala caused Gen. Barillas to suspend payment of the English debt for one year from Aug. 1, 1885.

The National Assembly authorized the Government to accept the proposal of Don Crisanto Medina and associates to found in the city of Guatemala a "Banco Hipotecario," with a capital of \$1,000,000, the bank to begin operations so soon as 500 of its \$1,000 shares shall have been subscribed. The charter of the bank to past fifty years, and its business to be the advancing of money on first mortgage of real estate, either in cash or bank-notes of its own issue, in conformity with the statutes of incorporation.

Commerce.—The imports and exports for five years have been as follow, in thousands of dollars:

YEAR.	Imports.	Exports.
1881.....	8,665	4,034
1882.....	2,652	8,719
1883.....	2,421	8,719
1884.....	3,830	4,938
1885.....	3,788	5,529

The duties collected on imports were:

1881.....	\$2,118,000
1882.....	1,679,000
1883.....	1,469,000
1884.....	2,668,000
1885.....	1,952,000

The imports from leading commercial countries have been:

YEAR.	United States.	England.	France.
1881.....	\$439,309	\$1,123,628	\$501,236
1882.....	379,598	961,604	297,469
1883.....	529,458	82,754	149,657
1884.....	593,626	1,735,954	450,865
1885.....	891,837	1,278,659	886,452

The exportation of the two principal products has been as follows:

YEAR.	SUGAR.		COFFEE.	
	Quintals.	Value.	Quintals.	Value.
1880.....	4,106	\$41,065	289,762	\$4,056,677
1881.....	156	1,560	260,372	8,645,220
1882.....	13,747	82,485	318,271	8,182,715
1883.....	44,627	228,186	404,069	4,848,882
1884.....	87,956	151,827	371,306	4,455,677
1885.....	68,429	817,149	520,818	5,208,181

The country produced in 1885, 13,789 tons of sugar, 4,793 hogsheads of molasses, and 26,455 bags of coffee.

The American trade with Guatemala during the fiscal year ended June 30, 1886, was: exports to the United States, \$1,957,632; imports thence, \$523,640.

In August, 1886, a committee was appointed to report on the advisability of creating in the capital a Chamber of Commerce and Commercial Council, and, after thoroughly ventilating the matter, they recommended that the plan be carried out.

There entered the ports of the republic in 1885, 303 steamers and 73 sailing-vessels, of an aggregate tonnage of 346,653; and there left 303 steamers and 72 sailing-vessels, of an aggregate tonnage of 345,423. Among the vessels arrived, 282 carried the American flag, 59 the British, and 25 the German.

Tariff.—Article XIII of the decree of May 29, 1886, ordering the conversion of the internal debt, abolishes the enhancement of the import duties, which had been decreed on Oct. 23, 1885, when they were raised, without distinction, 20 per cent.; and Article XIV provides that one third of the duties is to be paid cash, one third in *pagarés*, payable at the expiration of two months, and for the last third a credit of six months is extended to importers. Simultaneously the export duty on domestic wines was abolished, as well as all taxes to which domestic viticulturists and manufacturers of wines were subject, this measure to remain in force for twenty years. Another clause not only abolishes for ten years the *octroi* internal dues and export duty on coffee, but grants to coffee-exporters a bounty of 50 cents a quintal of 101½ pounds (American), payable three months from date of shipment. On the other hand, a decree dated July 30, 1886, re-established an extra import duty of 15 per cent. on all goods in public warehouses on Oct. 1, 1886, and thenceforth on all imports.

Extradition Treaty.—The Legislative Assembly ratified, in May, 1886, the treaty of extradition signed in Guatemala on July 4, 1885, by the representatives of the republic and Great Britain, and on September 6 ratifications were exchanged.

Education.—In 1885 there were in Guatemala 878 primary schools, attended by 39,398 pupils, and 60 private schools, with an attendance of 2,095. The state expended for public instruction during the year \$239,449. The National Library contains over 20,000 volumes. It is to be reorganized, and its scope is to be extended. There is a plan on foot, meeting with approval in both countries, to found in Guatemala an Academy of the Castilian Language, which is to correspond with the Royal Academy of the Castilian Language at Madrid.

Immigration.—While there arrived in 1885, through the ports and across the frontier, 5,637 individuals, 5,793 left. Among those arrived, 3,925 were Central Americans, 456

Mexicans, 267 Americans, 127 Italians, 117 Frenchmen, and 115 Germans.

Railroads.—On Dec. 27, 1885, work was begun on the railroad that is to connect La Antigua with the Central Railroad of Guatemala. In March the Minister of Public Works made a contract with J. F. Anderson, by which the latter and his partners engage to construct and put in complete working order, within eighteen months, the first section of the Northern Railroad, from Puerto-Barrios to Tenedores—twenty miles. They furthermore bind themselves to build a wharf at Puerto-Barrios 400 feet long and 30 feet wide, with a front so as to form a T 100 feet long and 50 feet in width; they to have the privilege of the railroad and wharf for a term of twenty years, on condition of keeping both in good order. The wharfage dues are not to exceed those at present levied at Livingston, Santo Tomás, and Puerto-Barrios; all material to be admitted duty free. The contractor and associates are at the same time granted, by way of Government aid, 500 *caballerías* of public lands, to be located in the departments of Izabal and Livingston.

Telegraphs.—On Jan. 6, 1886, the line of telegraph between Jocotán in Guatemala and Santa Rosa in Honduras, forty-four miles, went into operation, Guatemala having furnished all the material, and Honduras the labor within its limits.

Hospitals.—In 1885 there were admitted to the hospitals of the country 13,284 sick persons, and dismissed as cured 12,245, only 778 having died. There remained under treatment, on Jan. 1, 1886, 841 individuals. The total expenditure for the hospital service in 1885 was \$67,632.

Textile Industry.—Mechanical cotton spinning and weaving is carried on with power by two establishments, after the most approved methods, and with modern machinery, one at Bárrenas, and the other at Cantel. There are also in operation throughout the republic two thousand hand-looms weaving cotton. Guatemalan cotton goods are exported to other Central American countries to a notable extent.

Exhibition.—There is to be held, opening on Dec. 1, 1887, a national exhibition of products

of all kinds in the city of Guatemala, under the auspices of the Central Society of Mechanics, and under the patronage and with the aid of the Government.

Abolition of Torture.—A law passed on May 25, 1886, prohibits whipping, and decrees that torture—which was occasionally inflicted up to quite a recent date—shall under no circumstances be applied, whether direct, through privation, or otherwise. The observation of this decree is enjoined as much on military as civil officers, whether in peace or war.

Events of 1886.—In January the President issued a decree to the effect that, although the Government is bound to foster immigration, it is equally bound to impede the ingress into the republic of persons who constitute a pernicious element, which proves an obstacle to the advancement of liberty and progress. The decree then alluded to the Roman Catholic priests belonging to other nationalities, who, it says, breed discord and create opposition to the Government. It is ordered that such priests shall, on the discovery of their designs, be expelled from the country.

During the same month a plot to overthrow the Government was discovered in the capital. It was a scheme to set fire to the Grand Hotel and the theatre, at a time when there might be expected to be a full house. In the panic that would ensue, the intention of the conspirators was to take possession of the barracks without any great risk to themselves. A prominent feature of the programme was to murder President Barillas and his family; next to attack all foreigners, and finally to sack the city. The discovery of the plot led to the arrest of about fifty persons, including some officers in the army.

The Executive, under date of Sept. 13, 1886, issued a decree declaring martial law.

On October 10 great excitement was caused in the city of Guatemala by the exposure of an attempt to poison the President by two brothers, druggists. They prepared a poison, and gave it to a servant of the President, with \$2,000 as a bribe to administer it. But the servant handed over to his master both the money and the poison. The druggists were put to death.

H

HANCOCK, Winfield Scott, an American soldier, born in Montgomery Square, Montgomery County, Pa., Feb. 14, 1824; died on Governor's Island, New York Harbor, Feb. 9, 1886. His maternal grandfather and great-grandfather were soldiers in the War of the Revolution, and his paternal grandfather was one of the impressed American seamen of the War of 1812. His father, a lawyer of some distinction, named one of his twin-boys after one of the heroes of that struggle. While Hancock was still a child, the family moved to Norristown. Here he at-

tended the academy, and became known as a vigorous, upright boy, with a fondness for outdoor games, and more than the usual boyish inclination to play at soldiership.

He received an appointment to West Point, entered that institution in 1840, and was graduated with honor June 30, 1844. Among those at the Military Academy during that period were Grant, McClellan, Buell, Rosecrans, Reynolds, Longstreet, Pickett, and Stonewall Jackson. It is said that when Gen. Scott asked young Hancock, on his graduation, to what

regiment he wished to be assigned, he answered, "The one which is stationed farthest west." He was therefore assigned as brevet second-lieutenant to the Sixth Infantry, and sent to a frontier post in Indian Territory. June 18, 1846, he was made second-lieutenant in a company that had been sent to the Mexican frontier, and, though delayed at his former post, he joined his command early in 1847. He was engaged in skirmishes in defense of the National Bridge near Jalapa, August 12, and at Plan del Rio, August 15. He took part in the battles of Contreras and Churubusco, both fought on August 20; and he was made brevet first-lieutenant for gallant and meritorious conduct in those actions. He was present at the battle of Molino del Rey, September 8, and the capture of the city of Mexico, Sept. 14, 1847. After his return home he was made regimental quartermaster June 30, 1848, and served until Oct. 1, 1849. He was regimental adjutant from that date until Nov. 7, 1855. During most of this period he was stationed at St. Louis, and Jan. 24, 1850, he married Almira Russell, the daughter of a prominent merchant of that city. He was made first-lieutenant of the Sixth Infantry Jan. 27, 1853, and captain and assistant quartermaster Nov. 7, 1855. He was stationed at Fort Myers, Florida, 1856-'57; at Fort Leavenworth, Kansas, from August to December, 1857; and accompanied the expedition to Utah in 1858, marching thence to California late in that year. He was chief quartermaster of the Southern District of California from May 5, 1859, to Aug. 3, 1861.

When the civil war broke out, Hancock was stationed at Los Angeles. The secession sentiment was strong in California, and for a time it was doubtful whether the intrigues set on foot to carry it out of the Union would not be successful. He threw all his influence in favor of loyalty; organized a great meeting on July 4, 1861; made as impressive a display of military force as he could; and sacrificed his own inclinations so far as to deliver a patriotic oration. The effect of this proceeding was salutary. But, as California was then practically isolated from the rest of the nation, Hancock wrote to Washington at once asking to be transferred to the seat of war. His request was granted, and he arrived in Washington Sept. 4, 1861, and reported for duty. In a letter to a friend at that time he said: "My politics are of a practical kind—the integrity of the country, the supremacy of the Federal Government, an honorable peace or none at all." On the recommendation of Gen. McClellan, he was commissioned brigadier-general of volunteers Sept. 23, 1861, and was at once assigned to the Army of the Potomac, and put in command of the First Brigade of Gen. W. F. Smith's division, subsequently a part of the Fourth Corps, under Gen. E. D. Keyes. Before the Peninsular campaign began, early in the following year, he had time to discipline his men

and inspire them with confidence in his leadership.

The advance from Fortress Monroe was begun, April 4, 1862, and Keyes's troops were brought to a stand before the Confederate works at Lee's Mills, part of the line of fortifications across the Peninsula. May 3, the Confederates abandoned their defenses and withdrew to Williamsburg, and on May 4 the Union forces pushed on in pursuit, under command of Gen. E. V. Sumner, Smith's division, with Hancock's brigade in advance, leading. At about half-past five o'clock in the afternoon the advance struck the enemy's cavalry, deployed in line of battle, and moved to the attack—but to no purpose, as the country was covered with thick underbrush and impracticable in the growing darkness. May 5, the random battle of Williamsburg was fought, in which Hancock won his first laurels. Gen. Hooker began the attack at seven o'clock in the morning, with his division on the left, and fought for seven hours, trying after his usual fashion to win an independent battle. He gained nothing, and maintained himself with difficulty. At ten o'clock Sumner sent Hancock with his own brigade and part of another to take possession of a redoubt on Cub Run. He threw forward his troops skillfully, garrisoned the work, and then advanced in line of battle beyond it. By noon the success of the manoeuvre was complete, and it determined the result of the battle. But Hancock, seeing another redoubt nearly a mile beyond, which commanded his position, asked for re-enforcements, and pushed on and seized the work. Judging by the volume of the firing that the pressure on Hooker was very heavy, he still advanced, drove in the Confederate position, and compelled a desperate attack upon himself. As the promised re-enforcements had not been sent, he fell back slowly, while the storm gathered, and chose the crest of a hill near the first redoubt captured for a defensive position and waited for the advance of the enemy. Four Southern regiments rushed forward under the command of Generals D. H. Hill and Early; but, after crossing a stream and forcing their way through a dense growth of underbrush, they reached the open field in some disorder. It was then that Hancock's men, who seemed to be retiring, turned, delivered a deadly volley, and charged gallantly. The whole Confederate force gave way, and the repulse cost them 400 men. That night the Confederates retreated from Williamsburg. In this combat Hancock showed that rare skill in tactics and that ability to handle troops under fire which were to make him one of the most famous corps commanders of the world. Gen. Smith said of the affair: "The brilliancy of the plan of battle, the coolness of its execution, the seizing of the proper instant for changing from the defensive to the offensive, the steadiness of the troops engaged, and the completeness of the victory, are subjects to which I earnestly call the

attention of the general-in-chief for his just praise." McClellan said, in his dispatch to the Secretary of War: "Hancock has taken two redoubts and repulsed Early's brigade by a real charge with the bayonet, taking one colonel and 150 prisoners, killing at least two colonels and as many lieutenant-colonels, and many privates. His conduct was brilliant in the extreme." He added in a subsequent dispatch, "The effect of Hancock's brilliant engagement yesterday afternoon was to turn the left of their line of works." In a letter to Mrs. McClellan he said that Hancock's "conduct was superb," and, as the letter found its way into print, the somewhat unfortunate adjective was applied to the man rather than his action, and hurt fully as much as it helped his fame. During the rest of the campaign he did good service, but was not so conspicuous as at Williamsburg. He took part in the battle of Fair Oaks, May 31 and June 1, and in the actions at Savage's Station, Glendale, and Malvern Hill, June 29, 30, and July 1. His brigade covered the withdrawal of the Union trains at Glendale, and endured without flinching a heavy cannonade.

After the recall of the Army of the Potomac from the Peninsula, and the defeat of Gen. Pope at Manassas, Hancock, still in command of the First Brigade of Smith's division, which had been transferred to the Sixth Corps, accompanied Gen. McClellan in his march to drive back the Confederate army then in Maryland. Sept. 17, 1862, he went into action at Antietam with his usual frankness and rapidity, and put his troops in a commanding position, which he held with slight loss. On the field of battle he was transferred to the command of the First Division of the Second Corps, succeeding Gen. Richardson, who was mortally wounded. This was his first connection with the splendid body of troops with which his name will be forever associated. When he took his new command the main fighting for the day was over, and he simply maintained the position to which Richardson had withdrawn the division after its gallant advance to the sunken road. Nov. 29, 1862, he was made major-general of volunteers.

Dec. 13, 1862, he led his division in the memorable charge on Marye's Heights above Fredericksburg. He was to follow French's division in the assault. The troops were exposed to the Confederate artillery even in the streets of the town, and it is estimated that they had to march a distance of 1,700 yards under a murderous fire, while their progress was delayed by obstructions. It is conceded that, of all the gallant men who took that perilous way, Hancock's soldiers pushed the farthest and did the most desperate fighting. He commanded 5,006 men that day, and left 2,013 of them on the field. He had seventeen regiments, and in eight of them, numbering 2,548 officers and men, 1,324 officers and men were killed or wounded, an average of 54 per cent. No one of these regiments lost

less than 45 per cent., and one lost 60 and another 67 per cent. Francis W. Palfrey, in his history of the campaign, says that if Hancock had been allowed any discretion in the management of the attack, he might have achieved more and suffered less, as he "was one of the very best soldiers in the immediate presence of the enemy that the Army of the Potomac ever had."

In the miserably mismanaged campaign of Chancellorsville, May 1, 2, 3, and 4, where the Union commander, with a vast superiority of force, was outnumbered at every point of contact, Hancock gained honor, though its harvest was scarce and that of disgrace plentiful. He was in position on the left center, between Chancellorsville and Mott Run, and was slightly attacked May 1, and heavily attacked May 2, when Lee was bent on creating a diversion to conceal Jackson's march to turn the right of the Union line. May 3, he took the brunt of the desperate fighting, in which the Union forces were pushed back from the position assumed after the rout of the Eleventh Corps on the previous evening. Doubleday, describing the gradual melting away of the front, says: "At last only indomitable Hancock remained, fighting McLaws with his front line and keeping back Stuart and Anderson with his rear line." Yet he withdrew his division in good order, still fresh and full of fight, losing only a single regiment, that was posted at the southern apex of his line, and was not brought back. In his testimony on this battle, before the committee on the conduct of the war, March 22, 1864, he said: "I was directed to hold that position until a change of line of battle could be made, and was to hold it until I was notified that all the other troops had gotten off. This necessitated my fighting for a time both ways." But he intimated that the attack made on him was not dangerous. His horse was shot under him in this action.

June 10, 1863, Hancock succeeded Gen. Couch in command of the Second Corps, and he led it in the movement to repel Lee's second invasion of the North, which culminated in the battle of Gettysburg. Hancock's headquarters were at Taneytown, Maryland, July 1, 1863; and early in the afternoon, Gen. Meade, who had heard at one o'clock of the death of Gen. Reynolds and the defeat of the First and Eleventh Corps at Gettysburg, went to him and ordered him to ride forward at once, assume command of the broken forces, prevent further disaster, and decide as to whether the position was advantageous for a general battle. Hancock rode rapidly to the field, where he arrived at 3.30 in the afternoon. Perhaps no better fight was made during the war than that made by the First Corps July 1, 1863; but the remnants of that force were streaming back before overwhelming numbers and the Eleventh Corps was in utter rout. Francis A. Walker, in his account of the battle, says of Hancock's coming: "At this moment two important re-en-

forces to the Union side were approaching the field. One consisted of the stout Twelfth Corps, marching rapidly along the road from Two Taverns; the other was a man, a great captain galloping fast to the front, to bring order out of chaos and life from the dead." He adds as to the effect of his presence: "Upon this field of wreck and disorder now appeared Hancock. And, as the sun shining through a rift in the clouds may change a scene of gloom to one of beauty, so did the coming of this prince of soldiers bring fresh life and courage to the disheartened bands which were halting uncertainly upon the new line of defense. At his call the braver spirits flamed to their height; the weaker souls yielded gladly to the impulse of that powerful, aggressive, resolute nature. At once the doubtful halt on Cemetery Hill was transformed into a confident assumption of a new line of battle; the fearful stream down the Baltimore road was peremptorily stopped. Shattered regiments as they reached the hills were halted and re-formed." At 4.30 Hancock sent a staff-officer to Meade, saying that Gettysburg offered a good position for defense, though liable to be turned by the left. An hour later, Gen. Slocum coming upon the field, Hancock turned over the command to him, and rode back to confer with Meade, after halting his own corps three miles back in a position to prevent the turning moving that he considered feasible for the enemy. July 2, Hancock was in charge of the whole left center of the Union line after the wounding of Sickles, and beat back the assault of Longstreet. Doubleday says of him: "Hancock, who had been placed in command of the First, Second, and Third Corps, was indefatigable in his vigilance and personal supervision, 'patching the line' wherever the enemy was likely to break through. His activity and foresight probably saved the ridge from capture." July 3, Hancock was in charge of the left center and commanded all the troops that took part in the repulse of Pickett's charge against the Union center, consisting of the First, Second, Third, and Eleventh Corps. One of the picturesque incidents of the war was his riding the lines with his staff during the terrific artillery-fire that preceded the Confederate advance. He understood that Meade was to put in the Fifth and Sixth Corps, then in reserve, if the Confederate assault failed, and he ordered the commander of the left division of his own corps to swing in on the flank of the charging column if it bore to the right. This order was not obeyed, probably because the reserves were not pushed forward to fill the line; but the charge of Pickett did bear to the right, and Hancock was ready for the opportunity. Walker says: "This has left open Pickett's flank on that side, and Hancock, easily the best tactician of the Potomac Army and always on the very front line of battle, eagle-eyed, sees and seizes his opportunity. Galloping to Stannard's brigade, he directs him to

move his regiments to the front and attack the flank of the assaulting force." The charge spent its strength as Pickett pierced the Union line, and the charging column was shattered. Just at the final struggle Hancock was desperately wounded, and it was while leaning on his elbow and looking through a gap in a stone wall that he gave his last orders in regard to the repulse. A ball broke his saddle tree and pierced his thigh, carrying some of the wood into the wound with it and lodging at the bone, and his fall probably prevented the Confederate failure from being turned into a rout. When asked for his opinion on this subject by the committee on the conduct of the war, March 22, 1864, he said: "I think it was probably an unfortunate thing that I was wounded at the time I was, and equally unfortunate that Gen. Gibbons was also wounded, because the absence of a prominent commander, who knew the circumstances thoroughly, at such a moment as that, was a great disadvantage. I think that our lines should have advanced immediately, and I believe we should have won a great victory. I was very confident that the advance would be made. Gen. Meade told me before the fight that if the enemy attacked me he intended to put in the Fifth and Sixth Corps on the enemy's flank; I therefore, when I was wounded and lying in my ambulance and about leaving the field, dictated a note to Gen. Meade, and told him if he would put in the Fifth and Sixth Corps I believed he would win a great victory." Out of fewer than 10,000 men the Second Corps lost at Gettysburg about 4,000 killed or wounded. It captured 4,500 prisoners and about thirty colors.

As it was supposed that Hancock had been a favorite of McClellan and was a favorite of Meade, he got very little credit at first for his share in the battle of Gettysburg; and in the absurd joint resolution passed by Congress, Jan. 28, 1864, thanking Hooker, Meade, Howard, and the officers and soldiers of the Army of the Potomac for the victory, he was not named; but he was made major-quartermaster in the regular army, Nov. 7, 1863. Still, justice was only delayed, and April 21, 1866, Congress passed a joint resolution thanking him for his services in the campaign of 1863. Hancock did not report for duty again until December, 1863. He was then sent into the various States from which the regiments of the Second Corps had come, in order to fill them up by recruiting, and was occupied in this duty until the beginning of spring. On March 22, 1864, when he testified before the committee on the conduct of the war, he was passing through Washington on his way to the front.

In the memorable movement of Grant against Lee, begun at midnight, May 3, 1864, Hancock led the van of the army with the Second Corps, and reached the point designated for a halt in the vicinity of Chancellorsville at one o'clock in the afternoon, after helping to lay two bridges and marching more than twenty miles. The

next day, the first of the battle of the Wilderness, Hancock was in command of the left of the Union line, and had charge of his own corps and several divisions from other corps acting in connection with it. The fight began along his front about the middle of the afternoon, and continued until eight o'clock in the evening. The struggle was desperate and bloody, but altogether in Hancock's favor, and Gen. Humphreys, in his history of the campaign, says that, with an hour more of daylight, the shattered and disjointed lines of Gen. Hill, who opposed him, would have been driven from the field. At five o'clock the next morning Hancock renewed the battle, driving Hill's troops back through the forest in disorder after a fierce fight. Longstreet's corps, however, came on the field of battle and checked the advance, and just before seven o'clock Hancock paused to readjust his lines. At about nine he attacked again, but was forced slowly back to the position from which he had moved in the morning. The fighting was furious, and it was carried on with varying fortune, closing with a repulse of the enemy in the evening. Hancock was unable to throw his left into the battle frankly, as he had been warned to look out for Longstreet on that flank, and even after some of that general's command appeared in his front a portion of it was still unaccounted for, and false alarms as to an attack on the left occurred from time to time, and prevented the sweeping advance that might have been made.

After the movement to Spottsylvania Court House, Hancock crossed the Po on the evening of May 9, with part of his force, to turn Lee's left; but he was ordered next day to withdraw and make a direct assault with his own corps and the Fifth. The withdrawal involved a severe fight, in which the corps lost its first gun. The woods had taken fire, and the horses attached to this cannon became unmanageable, so that it got caught between two trees and could not be got away. At nightfall Hancock made a direct attack, as Warren had already done in the afternoon, but, like Warren, he failed. After dark, May 11, Hancock, under orders, moved three of his divisions over a narrow and difficult road in a heavy rain to a position in the Federal line opposite a weak salient in the Confederate intrenchments, since known as "the bloody angle," which had been vainly assaulted by Gen. Wright the day before. Arriving at the designated point half an hour after midnight, he formed, in darkness and storm, for the attack, which he was to make at four o'clock in the morning. He delayed the assault until 4.35, on account of a heavy fog that prevailed, and then threw forward his column. The men went with a rush, breaking into a ringing cheer as they ran, and, disdaining the sharp fire of musketry that greeted them, carried the intrenchment, capturing 4,000 prisoners, 20 pieces of artillery, and 30 colors.

The fight to maintain this conquest is considered the most murderous of the whole war.

In the unsuccessful assaults at Spottsylvania, May 18 and 19, Hancock took part, and, in the manoeuvring for position that followed, he was the most important factor. His corps was engaged in the battle of Totopotomoy, May 30, and suffered heavily in the disastrous assault at Cold Harbor, June 3, which, in deference to his adverse opinion, was not renewed. In the movement of the Army of the Potomac from Cold Harbor across the James river to the south of Richmond, by a march of about fifty miles, it was intended to have Hancock reach Petersburg June 15, in time to join Gen. Smith in carrying that place by assault before any part of Lee's army could reach it. He set out June 12, but was delayed on June 15 through slowness in furnishing rations, and through errors in the orders as to his line of march, so that he arrived too late for an attack with decisive results. He did not know, according to Grant's memoirs, "that he was going to Petersburg, or that anything particular was expected of him"; and it was after five o'clock in the afternoon when he learned what was at stake, through an order from Gen. Grant and a message from Gen. Smith. He was freely criticised for his delay, felt the criticism keenly, and asked for an investigation. Meade, who was himself in ignorance as to the necessity for haste on June 15, forwarded the application to Gen. Grant with the endorsement, "I do not see that any censure can be attached to Gen. Hancock and his corps." And Grant replied that no official censure had ever been passed upon the Second Corps or its commander at his headquarters, adding: "The reputation of the Second Corps and its commander is so high with the public and in the army that an investigation could not add to it. It can not be tarnished by newspaper articles or scribblers." In the futile attacks of June 16 and 17 Hancock was in command, but during the failure of the 18th and the misfortune of the 22d he was not on duty, being disabled through fragments of the bone splintered at Gettysburg working to the surface.

June 27, he took the field again. On the morning of July 26 the first movement to Deep Bottom began, in which Hancock, in co-operation with Sheridan's cavalry, crossed to the north of the James river with the design of carrying Richmond by a dash, or at least forcing Lee to detach heavily from the army defending Petersburg, and so give an opportunity for a successful attack on the Confederate lines there after the springing of Burnside's mine. The movement was only of use in its secondary purpose, and the Second Corps was rapidly and secretly withdrawn to the south of the James, to support the assault of July 30. From July 31 to August 12, Hancock presided over the court of inquiry called to investigate the causes of the failure of that attack. August 12 he was made brigadier-general in the regu-

lar army "for gallant and distinguished services in the battles of the Wilderness, Spottsylvania, and Cold Harbor, and in all the operations of the army under Gen. Grant in Virginia." At noon the same day he set out with his corps on the second movement to Deep Bottom with the same general design as on the former occasion. On the whole the expedition was futile, but, though it was attended with some mortifying incidents, it has never been said that the commander failed to do all that lay in his power to make it successful. The Second Corps was brought to Petersburg August 21 by a long night march, and after a rest long enough to allow the men to make coffee, was put in motion again for the Weldon Railroad, and by noon August 22 was at work tearing up the track as far as Reams's Station, twelve miles south of Petersburg. August 24, Hancock was in command and intrenched at that place, and there on the following day the only notable disaster in his career occurred. His lines were carried by a powerful force of the enemy, and many of his men captured. In all quarters during the action the troops forming the remnants of his great corps refused to bestir themselves. Even the few of his veterans left seemed disheartened by the slaughters they had seen and the fatigues they had undergone. "His horse was shot under him, and a ball cut his bridle-rein in two as he exposed himself to rally his men. The corps flag, which always followed him, was pierced by five balls, and another splintered the flag-staff. Gen. Morgan's account of the battle describes the commander covered with dust, begrimed with powder and smoke, laying his hand upon a staff-officer's shoulder, and saying, 'Colonel, I do not care to die, but I pray to God I may never leave this field!'" In the movement against the South Side Railroad, along the Boydton plank-road, which began October 28, Hancock took a leading part, and his troops once more acted with their old spirit, so that, although the expedition failed, Hancock's share in it was brilliant and successful. This was his last action. November 26, he turned over the command of the Second Corps to Gen. Humphreys, and, at the request of the Secretary of War, undertook the task of organizing a corps of veteran troops for service in the campaign of 1865, to consist of 50,000 men.

He was appointed Feb. 26, 1865, commander of the Middle Military Division, comprising the Departments of Washington, West Virginia, and Pennsylvania, with a force of 35,000; and March 13 he was made brevet major-general in the regular army "for gallant and meritorious service in the battle of Spottsylvania." When the pursuit of Lee began, he was prompt to take steps to join in it in case the retreat took a different direction. July 26, 1866, Gen. Hancock was made major-general and assigned to the Department of Missouri. He was transferred to the command of the Fifth Military District, comprising Texas and Louisiana, Aug.

26, 1867, succeeding Gen. Sheridan, whose course was not approved by President Johnson. In this position Hancock, who had always been a Democrat, made it plain that his opinion as to the duties of a military commander in time of peace and as to the rights of the Southern States were not consistent with the reconstruction policy determined upon by Congress. It is worth while to give the statement of his position contained in General Order No. 40, issued at New Orleans:

The general commanding is gratified to learn that peace and quiet reign in this department. It will be his purpose to preserve this condition of things. As a means to this great end he regards the maintenance of the civil authorities in the faithful execution of the laws as the most efficient under the existing circumstances. In war it is indispensable to repel force by force, and overthrow and destroy opposition to lawful authority. But when insurrectionary force has been overthrown and peace established, and the civil authorities are ready and willing to perform their duties, the military power should cease to lead, and the civil administration resume its rightful dominion. Solemnly impressed with these views, the general announces that the great principles of American liberty are still the lawful inheritance of this people, and ever should be. The right of trial by jury, the *habeas corpus*, the liberty of the press, the freedom of speech, the natural rights of persons, and the rights of property must be preserved. Free institutions, while they are essential to the prosperity and happiness of the people, always furnish the strongest inducements to peace and order. Crimes and offenses committed in this district must be referred to the consideration and judgment of the regular civil tribunals, and those tribunals will be supported in their lawful jurisdiction. While the general thus indicates his purpose to respect the liberties of the people, he wishes all to understand that armed insurrection or forcible resistance to the law will be instantly suppressed by arms.

These declarations, coming from a soldier of the Union at such a time, will remain forever classic phrases in the literature of civil liberty; but Hancock's orders, and his action in the spirit of them, put him in antagonism to the sentiment then prevailing at the North, and he was relieved at his own request, March 28, 1868, and transferred to the Division of the Atlantic, created Feb. 12, 1868, with headquarters at New York. After Gen. Grant became President, he was sent, March 5, 1869, to the Department of Dakota, but on the death of Gen. Meade, which took place Nov. 6, 1872, he was again assigned to the Division of the Atlantic, and retained that command until his death, with headquarters in New York city, until 1878, and subsequently Governor's Island.

General Hancock was frequently mentioned as a Democratic candidate for the presidency; but, though willing to accept a nomination, he was not politician enough to seek it. At the National Democratic Convention held in New York in 1868, he received 144½ votes on the eighteenth ballot. In the convention of 1880 he was nominated for the presidency, receiving 705 votes on the second ballot. The election was close, for though Garfield received 214 electoral votes to 155 for Hancock, the popular vote for the former was 4,449,053 to 4,442,035. The following States

voted for Hancock: Alabama, Arkansas, California (5 votes), Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, Missouri, Nevada, New Jersey, North Carolina, South Carolina, Tennessee, Texas, Virginia, and West Virginia. The result of the election did not seem to disturb him, and he kept on the even tenor of his way, only appearing when his presence was required to add grace to some public pageant. His last notable appearance was at Gen. Grant's funeral, of which he took full charge. Though the apparent cause of his last illness was a carbuncle, he really died from diabetes. He was buried at Norristown, February 13.

Gen. Hancock was a man of large stature and fine proportions, a model of manly strength and beauty in his prime. He was a clear and independent thinker, and a good writer; and, though mere politicians always affect to sneer at his political utterances, some of them will probably survive and receive approval when his critics are forgotten. No man was more generally and sincerely loved. He was courteous to all men, and faithful to his friends. His family affections were peculiarly strong. The pet names of his wife were the last words he spoke. The death of his only daughter in 1875, and that of his only son at the close of 1880, were calamities that made him feel as if all earthly honor were no more than "a peck of refuse wheat"; and in his last days he was wrapped up in devotion to his grandchildren. It is as a soldier, of course, that he will be known to posterity, and on his military achievements his fame must rest. Doubtless his place is among the foremost of those generals who never fought an independent campaign, for in every duty of soldiership except the highest he was tried and never found wanting. He was not only brave himself, but he had the ability to inspire masses of men with courage. He was quick to perceive opportunity amid the dust and smoke of battle, and quick to seize it. He was impulsive and yet tenacious. He had the bravery that goes forward rapidly, and the bravery that gives way slowly. Above all, he was loyal to the core—loyal to the soldier under him, loyal to the commander above him, and loyal to the nation over all. He was not only in every great battle of the Army of the Potomac, but in the very brunt of every great battle; and it is his peculiar glory that no comrade ever complained of him. He was the friend of McClellan, and did him gallant service; Burnside could rely on him for all that ability may do to amend the work of folly; Hooker could put full faith in him; Meade might trust him to choose the field of battle, and almost to fight it; and he was to Grant as his right arm. All sorts of men did him honor. Doubleday, who quarreled with Howard, had nothing but praise for Hancock; Sickles, who quarreled with Meade, was prompt to do homage to Hancock for the succor given to him at Gettysburg. Even the military critics, who delight to ex-

plain the blunders and shortcomings of great soldiers, have united in commendation of him, and pronounce his record almost without a flaw. Grant says of him: "Hancock stands the most conspicuous figure of all the general officers who did not exercise a separate command. He commanded a corps longer than any other one, and his name was never mentioned as having committed in battle a blunder for which he was responsible. He was a man of very conspicuous personal appearance. Tall, well formed, and, at the time of which I now write, young and fresh-looking, he presented an appearance that would attract the attention of an army as he passed. His genial disposition made him friends, and his personal courage and his presence with his command in the thickest of the fight won him the confidence of troops serving under him." Perhaps his best eulogy is the blunt declaration of Gen. Sherman to a reporter in search of adverse criticism during the presidential canvass of 1880: "If you will sit down and write the best thing that can be put in language about Gen. Hancock as an officer and a gentleman, I will sign it without hesitation." (See portrait of Gen. Hancock in the "*Annual Cyclopaedia*" for 1880.)

HAWAII, a constitutional monarchy, occupying the Hawaiian or Sandwich Islands, in the Pacific Ocean. The reigning monarch is Kalakaua. The Legislative Assembly consists of a House of Nobles appointed by the King, and a House of 28 Representatives, half of them elected by the natives and half by foreign residents. The ministry was composed, in 1886, as follows: Minister of Foreign Affairs, R. D. Creighton; Minister of the Interior, W. M. Gibson; Attorney-General, J. T. Dare; Minister of Finance, P. Kanoa.

Area and Population.—The eight islands composing the kingdom have an aggregate area of 6,677 square miles. Their population, on Dec. 27, 1884, was as follows:

ISLANDS.	Population.
Oahon	28,060
Hawaii	24,991
Maoii	15,970
Kaonaï and Niïhaon	8,935
Molokai and Lanai	2,614
Kahoulawe	
Total	80,578

Finances.—The budget is voted biennially. The receipts for the period 1884-'86, and the estimates for 1886-'88, were as follow:

SOURCES OF REVENUE.	1884-'86.	1886-'88.
Customs	\$858,796	\$1,200,000
Internal commerce	194,172	225,000
Excise	696,869	699,200
Fines and dues	224,110	205,550
Sale of government property	684,749	501,000
Balance in the treasury		
Loans	531,841	9,175
Various receipts	198,459	.....
Total receipts	\$3,298,496	\$2,889,925

The expenditures, under the various heads, for the same periods, are given as follow:

BRANCHES OF EXPENDITURE.	1884-'86.	1886-'88.
Civil list and appanages.....	\$141,960	\$127,800
Legislature and Privy Council.....	81,300	80,300
Justice.....	129,057	146,550
Foreign Affairs.....	222,678	298,100
Interior.....	1,162,125	909,620
Finance.....	566,569	645,500
Police.....	278,872	240,520
Instruction.....	151,693	173,020
Public health.....	241,470	259,000
Special loan.....	257,841	.....
Various expenditures.....	76,821	.....
Total expenditure	\$8,921,541	\$2,830,510

The public debt, on April 1, 1886, amounted to \$1,065,600.

Commerce.—The total value of the imports in 1885 was \$3,831,000; of the exports, \$9,069,000, of which \$8,959,000 were products of the country. The customs receipts amounted to \$502,000. The principal articles of export are sugar and rice. There were exported, in 1885, 171,350,000 pounds of sugar, 7,367,000 pounds of rice, 2,000 pounds of coffee, 57,000 pounds of tallow, 1,000 pounds of *ava*, 475,000 pounds of wool, 60,046 packages, and 41,636 neat-hides and calf and goat skins.

The export of sugar in 1886 was the largest ever known. During the nine months ending September 30 it amounted to 202,468,000 pounds, valued at \$9,208,875. Nearly all the other articles of export showed an improvement, but not so marked.

There were 32 miles of railroad in operation in 1886. The post-office, during the two years 1884-'85, forwarded 561,041 international, and 1,101,370 internal, letters.

Under a law that went into operation on Dec. 1, 1884, only gold coins of the United States are legal tender for more than \$10, and United States and Hawaiian silver coins for smaller amounts.

Navigation.—Among the 253 vessels, of 190,138 tons, that were entered at the port of Honolulu in 1885, there were 191 American vessels, of 133,044 tons; 33 English vessels, of 43,203 tons; 6 German vessels, of 3,267 tons; and 18 Hawaiian vessels, of 6,610 tons. There are steamers connecting the islands with the United States, Australia, and China, and 13 steamers and many schooners plying between the islands. The merchant navy, in 1885, had an aggregate burthen of 9,250 tons.

HAYNE, PAUL HAMILTON, an American poet, born in Charleston, S. C., Jan. 1, 1830, died at Copse Hill, Grovetown, near Augusta, Ga., July 6, 1886. He was educated in his native city, early became a contributor to the "Southern Literary Messenger" and other periodicals, and at different times edited the Charleston "Literary Gazette" and "Russell's Magazine" (also published in that city), and was on the staff of the Charleston "Evening News." After the civil war he removed to Copse Hill, Ga., where he resided until his death. He had been for many years a contributor to the best-known American periodicals, and published in book-

form, "Poems" (Boston, 1854); "Sonnets and other Poems" (1857); "Avolio, with Poems Lyrical, Miscellaneous, and Dramatic" (1860); "Legends and Lyrics" (1872); "The Mountain of the Lovers, with Poems of Nature and Tradition" (1875); and a complete edition of his poems, illustrated (1882). His posthumous poems are sufficient to fill another volume. He also edited, with a life, the poems of his friend the lamented Henry Timrod (New York, 1873), and wrote biographies of Robert Y. Hayne and Hugh S. Legare.

Paul Hayne's poetic nature was inherited from his mother, Emily McElhenney, who was of Scotch-English descent. His love of oratory and political achievement came from his father. In early life he passed through phases of religious doubt; but his spiritual convictions grew stronger as he grew older, until his last days were filled with a fervid faith in Christ and immortality. He was essentially a man of letters, and no rebuff of fortune or ill-health ever moved him from devotion to his art. With his wife and son he lived an ideal life



PAUL HAMILTON HAYNE.

in the pine-forest, "far from the madding crowd," content to reap at times the scant reward of a Southern man who subsists by his pen. He had many ardent admirers and devoted friends, not a few of whom were at the North, among the most eminent authors of the time. His friendship for Philip Bourke Marston, the blind poet of England, was one of the most romantic episodes in the life of men of genius. One of his most beautiful lyrics celebrated the fidelity and love of his heroic wife, whose earnest aspiration was for his comfort and fame. Hayne's poems are noted for their classic form, their admirable finish, and purely spiritual character. They are the secrets of Nature breathed in music by a worshiper of

the beautiful and the true. His prose works are full of fire and pathos, as became a character at once so intense and sincere. He was of medium height, slender and graceful. His hair was abundant and very dark, his eyes black and luminous, and his features molded into an almost perfect type of masculine beauty. There was in his countenance a glow that seemed to come from conscious superiority. Though devoted to South Carolina, he was drawn to Georgia soon after the war, and, from long residence and the appreciation of the people of that State, he learned to love it as if he had been nurtured there. His last poem, "Face-to-Face," was the poet's proclamation to the world that he was ready for the final summons, and that he trusted, in God's providence, to be found worthy to join "the choir invisible." In the little cottage home, where so much affection, and so many trials, and such splendid dreams, had had an abiding-place, "God's finger touched him, and he slept." Noted people in the North sent affectionate and sympathetic tributes, and he who had, when a child, been immortalized as "Philip, my King," the poet Marston, caused a memorial wreath of English flowers to be forwarded to his family as a tribute to his worth as a friend and author. He was buried from St. Paul's Episcopal Church, in Augusta, Ga. The funeral sermon, delivered by Bishop Beckwith, was one of the grandest tributes ever paid by priestly eloquence to a child of song. A large concourse followed the remains to the grave, nowise daunted by one of the most furious rain-storms that ever visited the city. A literary circle in Augusta, named in his honor, immediately after his death took measures to perpetuate his memory. The City Council gave a plot of ground in the cemetery for his interment, and a fund has been partly raised for placing over his grave an appropriate monument. In an adjoining lot reposes the dust of Richard Henry Wilde, and the summer rose that blooms upon his grave will cast its perfume upon that of Hayne. The South has produced no man of letters of such absolute self-surrender to his profession, nor perhaps one so consummate a master of the art of poetry. Paul Hayne lived and died true to his art and his mission, when to be a Southern poet involved heroism without a triumph and martyrdom without a crown.

HAYTI, a republic in the West Indies, covering the western third of the island of Santo Domingo. (For details relating to territorial divisions, population, etc., see "Annual Cyclopaedia" for 1883.)

Government.—The President of the Republic is Gen. Salomon, re-elected for seven years, dating from May 1, 1887. The Cabinet is as follows: Foreign Affairs and Agriculture, Brutus St. Victor; Justice and Public Worship, Lechaud; War and Navy, Brenor Prophète; Interior and Public Instruction, F. Manigat; Finance and Commerce, Callisthène Fouchard.

President of the Senate, Maignan; President of the Chamber, F. Ducasse; Director of the National Bank, founded in 1882, A. Jung.

The United States Minister Resident at Port-au-Prince is Dr. John E. W. Thompson. The Haytian Minister to the United States is S. Preston; and the Haytian Consul-General at New York, E. D. Bassett.

Army and Navy.—The effective strength of the military force of the republic is kept up through conscription on the one hand and by the enlistment of volunteers on the other, with the usual exemptions. The length of service is seven years in the case of conscripts, while volunteers are only held for four years. The army in 1886 presented an aggregate force, on a peace footing, of 6,828 men.

The Haytian fleet consists of three men-of-war, one of which is an armored vessel, the "Toussaint l'Ouverture," launched at Havre on Feb. 20, 1886.

Finances.—The public indebtedness in 1885 amounted to \$12,507,884, consisting of the remainder of the French debt of 1825, \$307,884; the Domingue loan, \$7,200,000, and the internal debt, \$5,000,000. In a public speech delivered by President Salomon, on the occasion of a visit to Cape Haytien in January, 1886, he expressed himself on the subject of Haytian finances to the following effect: "My Government has been the one to pay off the old national debt [the 1825 debt mentioned above]. This debt was reduced in the time of the Emperor Soulouque, when I was his Minister of Finance, and it was again reduced in the time of Boisrond Canal; but my Government has been the one to wipe it out altogether. Again, the Domingue loan, which was 51,000,000 francs, and the country knew not how the money was spent, has been reduced more than half; that is to say, it is now only 21,000,000 francs." The budget estimate of outlay for 1885-'86 was as follows: Department of Finance and Commerce, \$520,825; Foreign Affairs, \$89,070; War and Navy, \$1,096,134; Interior and Police, \$981,479; Justice, \$316,198; Public Instruction, \$698,188; Public Worship, \$67,648; Agriculture, \$254,972, constituting a total expenditure of \$4,024,464. The chief source of revenue is the customs, which yielded, in 1884-'85, \$3,774,351 from imports, and \$2,279,664 from domestic products exported. The country still has a paper currency. Foreign exchange and the Government treasury notes were quoted on July 3, 1886, as follow: Ninety days' sight drafts on Europe, 35 per cent. premium; three days' sight on the United States, 35 per cent. premium; treasury notes of 1882-'83, 50 per cent.; 1884-'85 and 1885-'86, 55 to 60 per cent. discount gold premium. That is to say, for \$100 American gold \$150 to \$160 treasury notes had to be paid.

Coffee.—The Haytian coffee-crop of 1886-'87 was estimated at 60,000,000 pounds, which

falls short of an average yield; but the higher price compensates for the difference.

Mahogany.—Crotches were selling at Port-au-Prince in July, 1886, at \$50 to \$250 (Haytian money) the 1,000 cubic feet, and logs at \$50 to \$80. While mahogany has gradually become scarcer in Hayti, Cuba, Mexico, and other tropical countries of the New World, it has become the fashionable furniture and cabinet wood in the United States, as it is now and has been for two centuries in England and on the Continent of Europe. It is largely used in house-trimmings in our large cities. So great has the increase in the use of mahogany become in this country that many manufacturers, especially in the Western States, have been making goods of cherry, birch, and other cheap woods, and staining them to imitate mahogany.

Postal Service.—There were in Hayti, in 1884, only three post-offices, which dispatched during the year 206,209 letters and postal-cards, and 135,082 newspapers and sample-packages. The receipts amounted to 62,822 francs, and the expenses to 134,125 francs.

Commerce.—There were imported into Hayti in 1885-'86 \$6,012,555 worth of merchandise, the export of products being \$7,859,990. The main export articles were coffee, logwood, cocoa, cotton, lignum-vitæ, hides, sugar, fustic, mahogany, and honey. The export through the port of Cape Haytien alone was \$1,718,360, and the import \$1,379,983. The American trade with Hayti has been as follows:

FISCAL YEAR.	Import into the United States	Domestic export to Hayti
1885.....	\$2,471,436	\$2,227,059
1886.....	2,603,992	2,963,147

In 1885-'86 the maritime movement in the four leading ports was:

ENTERED.

PORts.	Vessels.	Tonnage.	Steamers.	Tonnage.
Cape Haytien.....	288	285,019	137	223,965
Port-au-Prince.....	238	214,825	140	192,216
Gonaïves.....	126	115,496	76	103,424
Aux Cayes	111	109,916	75	101,385

CLEARED.

PORts.	Vessels.	Tonnage.	Steamers.	Tonnage.
Cape Haytien.....	288	285,019	137	223,965
Port-au-Prince	233	214,825	140	192,216
Gonaïves.....	126	115,496	76	103,424
Aux Cayes	113	111,521	75	101,385

HOLLAND. See NETHERLANDS.

HONDURAS, a republic in Central America; area, 39,600 square miles; population, 351,700.

Government.—The President is Gen. Luis Bográn, whose term will expire on Nov. 27, 1887. The Cabinet is composed of the following ministers: Foreign Affairs, Licenciado Don Jerónimo Zelaya; Justice, Public Works, and War, Señor R. Alvarado; Interior, Señor A. Gomez; Finance, Señor F. Planas; Agriculture, Señor A. Zelaya. The United States Min-

ister is Hon. H. C. Hall, resident at Guatemala; the Consul-General of Honduras, at New York, is Jacobo Baiz; the Consul at San Francisco is John T. Wright; at New Orleans, E. A. Lever; at Philadelphia, Salomon Foster. The American Consul at Ruatan and Trujillo is William C. Burchard; at Tegucigalpa, D. W. Herring, and at Yuscarán, Jacob P. Imboden.

Finances.—The republic owes British and French capitalists \$25,000,000 on bonds. When the republic issued these bonds, they were sold at par; but the banking-house and agents fled to other countries with the proceeds, so that Honduras only got about \$1,000,000 worth of railway material in return for the bond issue. These bonds were quoted at seven cents on the dollar on the London Stock Exchange Jan. 1, 1887. The internal debt of \$750,000 comprises \$700,000 treasury notes in circulation and \$50,000 floating debt. The budget for 1884 estimated the income at \$1,100,000, and the outlay at \$1,004,567; the revenue for 1886 was estimated at \$2,250,000. Col. P. Donan, a Dakota capitalist, secured a concession in June for founding in the capital, Tegucigalpa, a national bank of issue, with a share capital of \$1,000,000, toward which \$250,000 were then subscribed by New York, Chicago, New Orleans, and Minneapolis financial men, the bank to have the privilege of issuing \$500,000 in \$5 and \$10 bank-notes, under guarantee of the Government; \$250,000 to be deposited in the treasury in cash prior to issuing the notes, and \$250,000 to be set aside for a branch bank at Chicago, branch establishments to be opened likewise at Amapala, Puerto Cortéz, and Trujillo; loans to the Government not to exceed at any time the sum of \$100,000, for which 10 per cent. per annum interest will be paid, and the customs receipts pledged. The bank-notes of the new bank are to be taken in payment at their face value in all Government offices.

Railroads.—There is in operation the railway line between Puerto Cortéz and San Pedro-Sula, seventy miles. In October, Col. P. Donan, representing Gen. Thomas L. Rosser and other American capitalists, opened negotiations with the Government of Honduras about the construction of a railway to connect Puerto Cortéz, in the bay of Honduras, with the port of Amapala on the Pacific. Surveys were proceeding in August along the coast between Trujillo and Puerto Cortéz, preparatory to making the embankments and laying the rails on the projected Northern Railroad.

Telegraphs.—The number of offices in 1883 was 63, employing 230 operators, the length of wire being 1,360 miles; and 107,730 messages were forwarded. The receipts amounted to \$12,624, and the expenses to \$11,384. In August the Government granted Don Carlos L. Trista, of Trujillo, a concession establishing a line of telegraph between Trujillo and La Ceiba, with stations at Santa Fé and Balfate, as well as other convenient points, the privilege to extend over ten years.

Steamships.—In October the Honduras and Central American Steamship Company contracted for the building of two new steamers on the Clyde, Scotland, to measure 245 feet in length and 35 in width.

Commerce.—The imports in 1886 amounted to \$2,000,000, and the exports to \$2,500,000. The chief articles exported were coffee, India-rubber, ores, hides, skins, medicinal plants, and precious stones. The imports into the United States during the fiscal year 1886 amounted to \$730,559, and the domestic exports from the United States to Honduras to \$428,104.

Mining.—American capital continues to be actively engaged in exploiting the resources of the Yuscarán and other mines. The Central American Syndicate Company of New York, organized in 1882, being the owner of valuable franchises granted by the Honduras Government, and being furnished with a capital of \$78,000, without having any of its stock on the market, has made good progress in developing its interests. Its business is to advance the mining interests of Honduras, and it has aided in promoting several companies that are now actively engaged in reopening some of the abandoned mines, which had previously been worked as far as was possible without pumping or ventilating machinery. Each of these companies owns distinct properties, and is an independent organization, and each is in possession of ample funds. Under the auspices of these companies, a good wagon-road was built from San Lorenzo, on the Pacific coast, by way of Tegucigalpa to Yuscarán, 114 miles. This road was completed on June 3. The Santa Lucia Mining and Milling Company owns twenty-five old mines in the district. The Animas mine, of the Los Angeles Mining and Smelting Company, has been paying since the time of its discovery, and has been continuously worked by its native owners. Capt. J. P. Imboden has supervised the building of the road alluded to, connecting all the works about Yuscarán with good roads. The shaft of the Guayabillas mine, which is 600 feet back of the crop of the vein, and will cut all the veins in the set far below where they were worked by the old miners, is 6 by 12 feet and well timbered. The gold placers are in and adjacent to the head-waters of the Guayape river, a tributary of the Rio Patuca, a region long known for its mineral resources.

Education.—An evening school for mechanics was opened at Tegucigalpa, in January, 1886, the number of pupils being 219, and the average daily attendance 180.

Fruit.—The cultivation of tropical fruits for export to the United States constitutes the chief industry and almost the only source of trade and revenue in the Ruatan district. It was begun only a score of years since, in a very small way, but has gradually monopolized the labor and enterprise of the inhabitants. The trade in bananas, plantains, and pineapples is most active from March to July. Fruit is

shipped constantly during the entire year, but from July to March the prices are lower. New Orleans receives the largest part; thence they are forwarded in fruit-cars to the North and West. The freights carried by the railroads from New Orleans on bananas alone during the past year amounted to over \$200,000, and the business is increasing. There are seven regular steamships constantly employed in the fruit-trade between the Ruatan district and New Orleans. These vessels have an aggregate carrying capacity of 100,000 bunches of bananas, 250,000 cocoanuts, and 175,000 plantains, besides an assortment of pineapples, oranges, etc. They can make two round trips a month, but probably do not average over ten annually. There are also two steamships from New York, which call regularly at Ruatan for cocoanuts. Besides the steamers, there are schooners engaged in carrying fruit from the district to New Orleans, Mobile, and Key West.

Events of 1886.—On February 14 the American man-of-war "Galena" captured, near the Colombian island of San Andres, the American steamer "City of Mexico," with an alleged filibustering party and arms on board, said to have Honduras for their destination, and brought them into Key West, where the vessel was libeled and the leaders—Gen. Delgado, Col. Morey, M. Soto, and Capt. Kelly—were prosecuted in the United States District Court. This attempt having failed, ex-President Marco Aurelio Soto left New York for Costa Rica, and thence sent a small revolutionary force of 77 devoted political adherents to Honduras, for the purpose of stirring up the people to revolt against the constituted authorities; but not a man could be induced to join them. Meanwhile the Government force, sent against them, defeated the little band on August 18, at La Maní, eighteen miles from Comayagua, the Cuban Col. Morey being killed, together with Velasquez and seven other chiefs and officers. Four leaders—Gen. E. Delgado, Lieut.-Col. Indalecio Garcia, Commander Miguel Cortéz, and Lieut. Gabriel Loyano—were shot at Comayagua on October 18. President Bográn offered to spare Gen. Delgado's life, on condition of a promise not to take up arms against Honduras again; but the offer was spurned.

HOUSES, PORTABLE. The demand for ready-made houses began shortly after the great migration of gold-seekers to California in 1849, and it has continued to increase ever since. At first the buildings were made with ordinary frames, so that they could be readily set up and fastened together on reaching their destination. Skilled workmen and machinery were so scarce in California in the early days that houses could be made on the Atlantic coast and shipped round Cape Horn at a fair profit; but, of course, the abundance of lumber on the Pacific slope put a stop to this traffic as soon as machinery could be transported and set in operation. During the Crimean war (1854-'55) barracks and quarters, made in Eng-

land and France, were sent out by sea for the use of the allied forces, and the civil war in the United States still further developed the trade. Since that time a large demand for such buildings has come from railway constructors on the great transcontinental lines; from settlers in the Western wilderness; from miners; from camp-meetings; and from the rapidly increasing army of people who seek an out-of-door life during the summer months, and are lining the North Atlantic sea-coast with cottages.

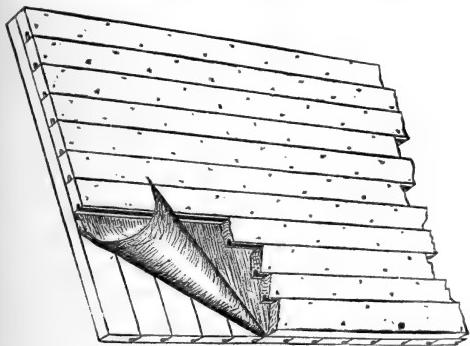


FIG. 1.—SECTION FOR ROOF OR SIDING.

Much ingenuity has been directed to details of construction, and a high degree of perfection has been attained.

The finished buildings may be classified as "frameless," "knock-down," and "permanent." The same system of construction enters largely into all three of them, different makers, of course, following different plans of nomenclature as well as of design.

The siding and roofing is a prime consideration, and one of the most approved systems is shown in Fig. 1. Panels or sections are made

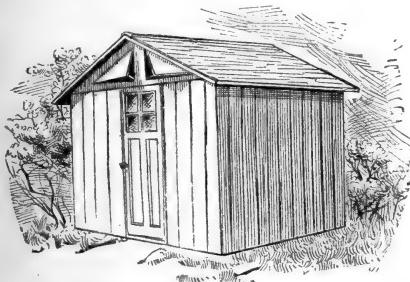


FIG. 2.—CAMPER'S HUT (EXTERIOR).

as indicated of tongued and grooved half-inch boards, the outer course being vertical and the inner horizontal, with a layer of roofing-felt or prepared sheathing-paper between them. If a more sightly inside finish is desired, a third course is "blind-nailed" on the inside, affording more warmth, greater strength, and, of course, greater weight. The sections are made

of different sizes, according to the dimensions or class of the intended buildings. Fig. 2 and 3 represent a "camping-hut," exterior and interior. The sides, ends, and floor are each a single panel, and the roof is in two similar panels, joining under the ridge-pole. A hut like this with two cots, shelves, etc., weighs 500 pounds.

The "knock-down" class is more elaborate, calling for several panels in roof and sides, and for windows and doors (Fig. 4). The edges of adjoining roof-panels meet over the rafters, and a groove in the top of each rafter leads to the eaves the small amount of water that finds its way through the openings. The siding-panels are interchangeable, so that windows and doors can be placed wherever they are wanted, or even shifted if need be. The example given is the simplest in its class. Its size renders necessary some interior framing and truss-work, so that it properly belongs to a different class from the camper's unframed hut. The third or "permanent" class is still more elaborate, including two and three storied structures, with some pretensions to architectural effect. One of them—a summer cottage—is shown in Fig. 5. Each of the classes described contains numerous variations on the types illustrated, including chicken-houses, hen-coops, barracks, hospitals, churches, club-houses, and the like, any of which are on short notice packed at the factory and shipped to any part of the world with full printed directions for setting up.

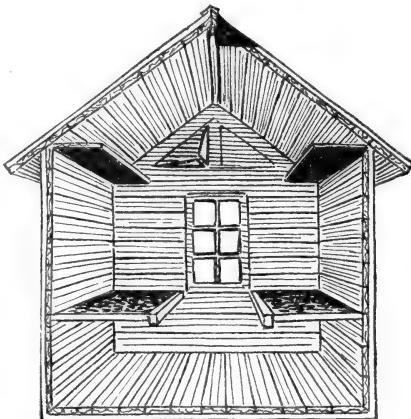


FIG. 3.—CAMPER'S HUT (INTERIOR).

An entirely different type of structure is found in the field-hospitals or portable barracks recently exhibited at Antwerp at the instance and invitation of the Red Cross Society. This association, it will be remembered, became prominent during the Franco-Prussian War (1870-'71), and it has since devoted itself largely to the perfecting of field-hospital equip-

ment. There was only one American competitor at the Antwerp Exhibition, William M. Ducker, of Brooklyn, N. Y. His design, described herewith, was awarded a special medal presented by the Empress of Germany,

window, opening inward on hinges, and a slatted shutter, opening outward. A row of these opened sections, set up side by side, edge against edge, forms the sides and ends of the barrack. They are fastened together by an interlocking system of keys and sockets so that they are perfectly firm and solid. The ridge-pole is in three sections, the interior ends resting on perpendicular uprights. Rafters rest on the ridge-pole, and on the tops of the side sections where slots and keys hold all securely in place. Over the whole a water-proof roof of army duck is stretched and laced to hooks provided for the purpose. The floor consists of box-like panels keyed to the side-sections and to a long central box running the whole length of the structure, which has a special mission of its own.

It is open to the air through suitable registers at either end, and may be connected with a heating apparatus or used simply for ventilation, for which purpose other registers open in the top of the box that forms the central strip of floor. The floor, being raised above the ground, prevents all dampness, and permits free circulation of air under the whole building. Attached to each end of the building is a small annex, one of which may be used for cooking, or heating, or both, and the other for closets necessary in a hospital. The material used to

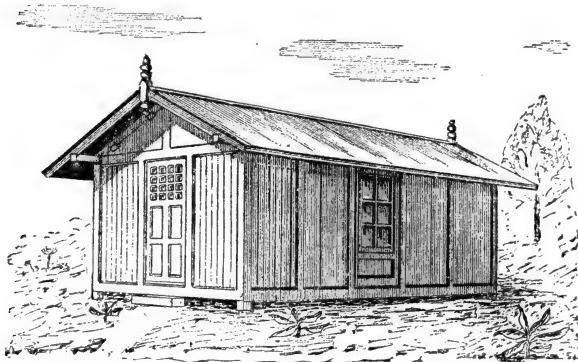


FIG. 4.—SMALL PORTABLE HOUSE.

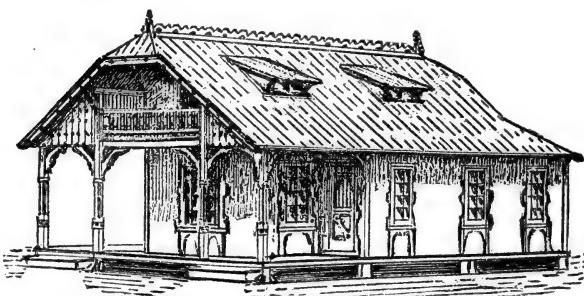


FIG. 5.—SUMMER COTTAGE.

and has since been ordered on trial by several European Governments.

It is contrived with an eye to all the probabilities of field service, combining simplicity, lightness, and durability in a remarkable degree. The unit of construction is a folding section, shown in different positions in Fig. 6; closed for transportation in the middle, a front view open at the right, and a side view open, with the bed and table lowered at the left. Each section, too, has its own glazed win-

cover the sections is a very stiff and heavy paper board, two thicknesses, with an air-space between them being employed to secure uniform temperature.

The standard size of building is 18 by 34 feet. It contains twelve sections, each with its

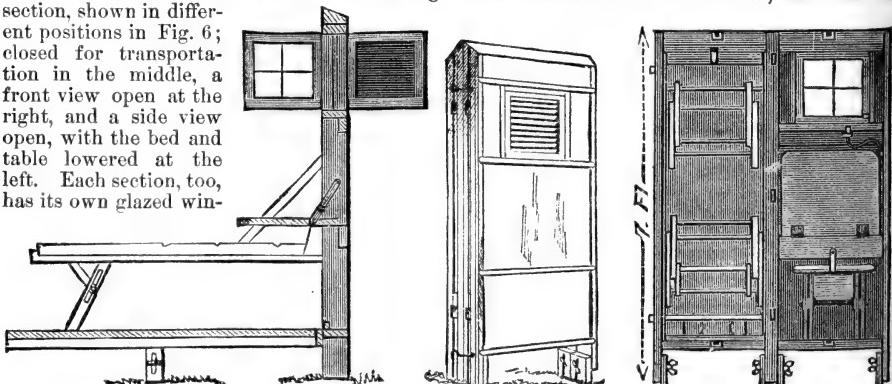


FIG. 6.—SECTIONS OF DUCKER'S PORTABLE BARRACK (OPEN AND CLOSED).

bed, table, and chair, and weighs, complete, about 2,500 pounds. It can be loaded upon an ordinary double truck, and can be hauled by a span of horses.

The advantages of such buildings for army purposes are readily appreciated. Two men can set one of them up in a little more than an hour, and four men in a correspondingly shorter time. For hospital purposes, either as temporary wards used in connection with permanent establishments, or as semi-permanent field-hospitals, they are admirably contrived.

By using a smaller number of sections independent structures, respectively, 18 by 22 feet, and 12 by 18 feet, may be made in the same manner, suitable for camping parties or for any of the purposes for which buildings of such dimensions are adapted. The completeness of the whole outfit, containing in itself all essential furniture in the most compact shape, is obvious at a glance. The barrack has been thoroughly tested in several very severe storms, and it is said that it fully meets all reasonable requirements.

I

ICE, ARTIFICIAL. No material changes have taken place for several years in the methods of harvesting and storing for summer use the natural ice-crop of the Northern States. The demand for consumption has, however, largely increased, and the annual harvest is believed to exceed 25,000,000 tons. The interests of the industry are represented by the "Ice Trade Journal," an eight page paper, published every month in Philadelphia, and now in its tenth volume. The business of manufacturing special tools, wagons, and machinery has become a special branch of industry, employing many skilled artificers.

With the increasing demand for ice under conditions where the natural product can not readily be utilized—as, for instance, during long sea-voyages or in tropical countries—inventors have turned their attention to the production of ice, or its equivalent cold, by artificial means. Such methods have long been employed by Oriental nations. Plutarch, Theocritus, and Aristotle refer to the preservation of ice and snow, and to its use as a luxury during summer. Aristotle doubts the healthfulness of ice-water as a beverage. Solomon, however, may be said to give it a *quasi*-approval, when he says (Proverbs xxv, 13): "As the cold of snow in the time of harvest, so is a faithful messenger to them that send him: for he refreshes the soul of his masters."

The Hindoos have, probably for many centuries, obtained ice by the following method: In a wide, open field, unobstructed by trees or buildings, pits are digged twenty or thirty feet square and two feet deep. The floors of these are covered with dry stalks of straw or cane, upon which very shallow vessels of porous clay are placed, and after nightfall are filled with water. The evaporation is of course very rapid, and in the morning, if the night has been cloudless, thin sheets of ice are found in the pans. This experiment has been successfully repeated in England and in France, but the product is so small as to be unavailable for practical purposes in temperate climates. Jars of porous clay are also used in the tropics for cooling water, and where they are carefully tended ice is said sometimes to form in small quantities.

Probably the most familiar of all ice making machines is the common ice-cream freezer, namely, a metallic vessel surrounded by a mixture of common salt with snow or broken ice, forming what is termed a "freezing-mixture." In the metallic vessel is placed the cream or other substance to be frozen, and an interior arrangement of dashers keeps it agitated while the ice and the salt pass from a solid to a fluid condition—melt and expand, that is—and by the process extract so much heat from the cream that its temperature falls below the freezing-point. An equally simple method furnishes the Parisian restaurants with the refreshing *carafes frappées* so familiar to travelers. Decanters filled with fresh water are set in shallow tanks filled with salt water, which freezes more slowly than fresh. Contiguous to the tanks are receivers, which can be easily charged with vaporized ether. The ether soon extracts the heat from the salt water, which in turn absorbs that of the fresh water, and the latter, after a suitable exposure, solidifies within the decanter and is ready for the table.

In order to comprehend the operation of ice-making machines, it is necessary to accept some of the established phenomena of heat in its relations to gases, fluids, and solids. Air, for instance, the most common of the gases, becomes heated when it is compressed. In this compressed state its heat can be more readily removed than when in its normal degree of expansion, and, when suffered to re-expand, it is in a condition to absorb a large amount of heat from any solid or fluid with which it is brought in contact. Thus, three cubic feet of air at the normal pressure of fifteen pounds per square inch, with a temperature of 75° Fahr., when compressed to one cubic foot will show a temperature of about 225° Fahr. After it has been allowed to cool until it has regained its original temperature, 75° Fahr., it may be allowed to re-expand to three cubic feet. When its temperature will fall to about 25° Fahr., and if the expansion leads it into a receiver containing a vessel of water, the heat of the water will pass to the air, and, unless the volume of water be too great, it will soon freeze. A greater degree of compression will

cause a correspondingly lower temperature in the re-expanded air. Other gases are far more powerful refrigerating agents than air. Water, the most abundant of the fluids, and the one that is popularly inferred whenever the term "ice" is used, holds a large amount of heat and yields it slowly, as witness the length of time for which a hot-water bottle will remain warm. To reduce water to the form of ice, a very large amount of heat must be abstracted from it, and all the operations of compression and expansion of gases (of course including air) aim at this result.

Since 1861 the use of machines for the refrigerating processes of manufacture and transportation has become very general. The principle of heating a gas by compression, suffering it first to cool, and then to expand, as described in the case of atmospheric air, is the basis of the operation. This calls for powerful compressing machinery, a cooling reservoir capable of sustaining a tremendous pressure from within, and proper conduits for the expanded and very cold gas.

The most extensive application of dry-air refrigerators is in the preservation of meat and other perishable foods. Since the successful introduction of the process in 1878, it has become possible to send fresh meat to any part of the world, or to preserve it for use on ship-board. Previous attempts to refrigerate on a large scale by means of ice had failed, owing to the amount of moisture carried by the air cooled in this manner, but the cold-air machines deliver the air practically without moisture. To prepare a room or the hold of a ship for the refrigerating process, it should be lined with outer and inner courses of tongued-and-grooved boards one inch or one and a quarter inch thick, having an interspace of nine inches, which is filled with charcoal or silicate cotton, or some non-conducting substance. Especial care should be taken in construction so that the chamber shall be perfectly tight. The cold air from the machine is usually led into the refrigerating chamber through ducts placed near the ceiling, and after circulating through the room is led back to the machine to be used over again, with the addition of a small amount of fresh air. By this means the temperature may be kept at about 10° Fahr., which allows an ample margin for accident to the machinery, necessitating a temporary stoppage for repairs—this, of course, if the chamber is air-tight, or nearly so. Improvements are constantly reducing the expense of the refrigerating process, and increasing the efficiency of the machines; and a reduction of temperature on board cattle-ships has been effected in climates where the heat threatened to prove fatal to the living cargo. The different methods of abstracting heat—which is equivalent to producing cold—may, as indicated by the foregoing, be divided into three distinct classes, which will be described under separate heads:

Freezing-Mixtures, that is, Melting Solids.—The familiar ice-cream freezer is the simplest form of this type. In the more complicated devices the same principle is merely elaborated by using different mixtures and more economical mechanical appliances. The salts used can be recovered by evaporation of the water, and used over again indefinitely. In hot climates the heat of the sun may be used to effect this evaporation, but elsewhere artificial heat must be employed, with, of course, increased expense. The usual method is to cause the freezing-mixture to circulate around the cans or molds in which the ice is to be formed, pumping it, or causing it to flow back to be refrigerated before it has parted with all of its heat. The cost of producing fifteen tons of ice in twenty-four hours by the Siemens machine is estimated at about \$1.50 a ton, without making allowance for wear of machinery and repairs. Nearly all the artificial heat is applied to recovering the salt, the proportions being estimated at two and a half tons of coal to fifteen tons of ice. The following table gives a list of freezing mixtures, with their respective efficiency in reducing temperatures:

TABLE OF FREEZING-MIXTURES.

Composition by weight.		Reduction of temperature in degrees Fahrenheit.
Ammium nitrate.....	1 part	From $+50^{\circ}$ to $+4^{\circ} = 46^{\circ}$
Water.....	1 "	
Ammium chloride.....	5 parts	From $+50^{\circ}$ to $+10^{\circ} = 40^{\circ}$
Potassium nitrate.....	5 "	
Water.....	16 "	
Ammium chloride.....	5 "	
Potassium nitrate.....	5 "	
Sodium sulphate.....	8 "	From $+50^{\circ}$ to $+4^{\circ} = 46^{\circ}$
Water.....	16 "	
Sodium nitrate.....	2 "	From $+50^{\circ}$ to $-8^{\circ} = 58^{\circ}$
Nitric acid diluted.....	2 "	
Ammium nitrate.....	1 part	From $+50^{\circ}$ to $-7^{\circ} = 57^{\circ}$
Sodium carbonate.....	1 "	
Water.....	1 "	
Sodium phosphate.....	9 parts	From $+50^{\circ}$ to $-12^{\circ} = 62^{\circ}$
Nitric acid diluted.....	4 "	
Sodium sulphate.....	8 "	From $+50^{\circ}$ to $0^{\circ} = 50^{\circ}$
Hydrochloric acid.....	9 "	
Sodium sulphate.....	5 "	From $+50^{\circ}$ to $+3^{\circ} = 47^{\circ}$
Sulphuric acid diluted.....	4 "	
Sodium sulphate.....	6 "	
Ammium chloride.....	4 "	From $+50^{\circ}$ to $-10^{\circ} = 60^{\circ}$
Potassium nitrate.....	2 "	
Nitric acid diluted.....	4 "	
Sodium sulphate.....	6 "	From $+50^{\circ}$ to $-40^{\circ} = 90^{\circ}$
Ammium nitrate.....	5 "	
Nitric acid diluted.....	4 "	
Snow or pounded ice.....	2 "	To -5°
Sodium chloride.....	1 part	
Snow or pounded ice.....	5 parts	To -12°
Ammium chloride.....	1 part	
Snow or pounded ice.....	24 parts	To -18°
Sodium chloride.....	10 "	
Ammium chloride.....	5 "	From $+32^{\circ}$ to $-80^{\circ} = 112^{\circ}$
Potassium nitrate.....	5 "	
Snow or pounded ice.....	12 "	
Sodium chloride.....	5 "	To -25°
Ammium nitrate.....	5 "	
Snow.....	3 "	From $+82^{\circ}$ to $-28^{\circ} = 55^{\circ}$
Sulphuric acid diluted.....	2 "	
Snow.....	8 "	From $+82^{\circ}$ to $-27^{\circ} = 59^{\circ}$
Hydrochloric acid.....	5 "	
Snow.....	7 "	From $+32^{\circ}$ to $-80^{\circ} = 112^{\circ}$
Nitric acid diluted.....	4 "	
Snow.....	4 "	From $+32^{\circ}$ to $-40^{\circ} = 72^{\circ}$
Calcium chloride.....	5 "	
Snow.....	2 "	
Calcium chloride crystallized.....	3 "	From $+32^{\circ}$ to $-50^{\circ} = 82^{\circ}$
Snow.....	3 "	
Potash.....	4 "	From $+32^{\circ}$ to $-51^{\circ} = 85^{\circ}$

Evaporation of Liquids.—All liquids are more or less volatile. Those which are most volatile are the most efficient agents for abstracting heat. Such are ammonia, ether, etc. A very large number of machines are in use operated on this principle. That invented by Ferdinand Carré was the pioneer, and its successors have been mainly improvements, mechanical or chemical, upon his idea. Advantage is taken of the property of water which enables it to absorb large quantities of ammoniacal gas (700 times its own volume, at a moderate temperature), capable of converting into ice more than three times its own bulk. Aqua ammonia is introduced into a boiler, and the gas expelled by heat into a condenser, which operates by a combination of cold and pressure. From the condenser the ammonia passes in a liquid state, and at a very low temperature to a refrigerator in which vessels are placed containing the water to be frozen. Carré claimed that for every pound of coal consumed his apparatus would make from eight to twelve pounds of ice, according to the size of the machine. As the same ammonia is recovered, returned to the boiler, and used over and over indefinitely, the intrinsic economy of this and similar methods is obvious. A machine capable of producing 500 pounds of ice an hour will, in the same time, liberate from solution, liquefy, evaporate, and redissolve 100 pounds of pure ammonia. The following table gives temperatures on Fahrenheit's scale. The boiling-point and latent heat of evaporation are at atmospheric pressure:

EVAPORATION OF LIQUIDS.

CONDITIONS.	Water.	Anhydrous ammonia.	Sulphuric ether.	Methyl ether.	Sulphur dioxide.	Frost's liquid anhydrous sulphuric acid.
Specific gravity of vapor, air being 1.000...	0.622	0.59	2.24	1.61	2.24	...
Boiling-point... Latent heat of vaporization...	212°	-37.3°	96°	-10.5°	14°	-2.2°
Absolute vapor tension in pounds per square inch at different temperatures.	966°	900°	165°	.....	182°	.....
	-40°	.....	.....	.....	5.7	11.6
	-20	19.4	12.0	5.7	11.6	15.4
	0	30.0	1.5	18.7	9.8	22.6
	+20	47.7	2.6	28.1	16.9	27.0
	+32	0.089	61.5	3.6	30.0	22.7
	+40	0.122	73.0	4.5	42.5	27.3
	+60	0.254	108.0	7.2	0.10	41.4
	+80	0.508	152.4	10.9	86.1	60.2
	100	0.942	210.6	16.2	118.0	84.5
	120	1.685	288.7	23.5	177.5	79.1
	140	2.879	.....	33.5	.....	99.7
	160	4.731	.....	45.6	.....	.....
	180	7.511	.....	62.0	.....	.....
	200	11.526	.....	81.8	.....	.....
	212	14.7	96.0	.....	.....	.....

Cold Air.—These machines, now extensively used, compress atmospheric air, partially cool it while under compression, suffer it to expand, and lead it while at its reduced temperature into a refrigerating-chamber. In the best machines there are two or more compressors to which the air is led through pipes and powerfully compressed by steam-power.

Thence it escapes, still compressed, into a series of pipes, which are surrounded by moderately cold water. Here the temperature of the compressed air falls to within five or six degrees of the water surrounding it, and then passes to the expansion-cylinder, where by the simple act of expansion it falls in some cases to 70° below zero. Many ingenious devices economize all the forces. In the Lightfoot machine, for instance, the compressed air when it is liberated returns about 60 per cent. of the power that has been expended in compressing it. It is found that angles in the conduit-pipes restore the heat to air passing through. The conduits therefore should be as straight as possible. Thirty to forty gallons of water are required to cool 1,000 cubic feet of air at the normal pressure. Machines are constructed to deliver from 25,000 to 285,000 cubic feet of air per hour at about -25°, varying somewhat with the atmospheric conditions, but readily maintaining a positively refrigerating temperature in properly ceiled rooms. Cooled air gains about one degree of heat for every twenty feet of conduit-pipe passed through; therefore, the refrigerating-chamber must be as near as possible to the condensing machinery. It was at first supposed that the cooled air would be so heavily charged with moisture that some artificial drying process would be necessary; but it is found in practice that the moisture is for the most part condensed and precipitated in the form of snow before it reaches the delivery-pipes. This deposit of snow is so copious that special arrangements have to be made for its periodical removal. The usual estimate for keeping the temperature of a room down to say 15° Fahr., is one and a half cubic feet of cold air for every cubic foot of storage-room. In practice this may often be reduced to one cubic foot for each cubic foot of storage; but it is best to provide for the larger proportion.

The actual performance of a Haslam machine intended to supply 60,000 cubic feet of cold air in an hour was as follows: The storage-chambers were sixteen in number, with a cubic capacity of 48,000 feet, and capable of storing 11,000 sheep. The regular running time of the engine was twenty hours a day, the four hours of rest being necessary to clear the snow-boxes, valves, and air-trunks. The average speed of the engine was 80 revolutions a minute at an air-pressure of 44 pounds a square inch. This gave a temperature of -57° Fahr. in the snow-boxes, and kept the chambers at about +15° Fahr., that being found the best preservative temperature for meat. About four and a half tons of coal were used in twenty-four hours. The chambers nearest the engine were easily kept at a very low temperature, but the more distant chambers required a more liberal supply of cold air. It has been estimated that, at a comparatively moderate expenditure, passenger-steamers on the regular sub-tropical lines could be fitted with cold-air machines, which would largely promote the comfort and health

of all on board. They will, no doubt, shortly be introduced not only on shipboard, but in the wards of hospitals, where a cool temperature in summer is often essential to the successful treatment of patients. Under ENGINEERING will be found an account of some recent mining operations that could with difficulty have been accomplished without the aid of freezing-machines.

IDAHO. Territorial Government.—The following were the Territorial officers during the year: Governor, E. A. Stevenson; Secretary, E. J. Curtis; Treasurer, Joseph Perrault; Comptroller and Superintendent of Public Instruction, Silas W. Moody; Attorney-General, D. P. B. Pride. Supreme Court, Chief-Judge, J. B. Hays; Associate Justices, Norman Buck and Case Broderick.

Surface.—The nearest classification of the land of the Territory thus far is as follows: Suited for agricultural purposes in its natural state, 15,000,000 acres; capable of being reclaimed by irrigation, 12,000,000; natural pasture or grazing land, 6,000,000; 18,000,000 acres of timber and mineral lands; and 4,000,000 acres of mountain, desert, and volcanic formation, comparatively worthless.

Climate.—The climate of Idaho is one of its chief attractions; with its varying altitudes within a few miles, almost any desired temperature may be had. Idaho is affected by the warm currents supposed to be produced by the great Japan current.

Rivers and Lakes.—One of the great attractions of Idaho is found in the streams that abound in the Territory. With a few exceptions, in the southeastern portion, whose waters flow into the basin of Great Salt Lake, the river system of Idaho is entirely tributary to Columbia river. Spokane river is the outlet of Lake Cœur d'Alene, and flows through Kootenai County into the Columbia. Clark's Fork flows into lake Pend d'Oreille, and under the name of Pend d'Oreille river pours its waters also into the Columbia. Snake river makes a curve through the southern portion of the Territory, and deposits its waters in the Columbia, and it is doubtful if a single pan of the earth along its banks can be found that does not contain gold, and the same may be said of nearly all its tributaries.

Agriculture and Fruit.—It is estimated that about one third of the population of Idaho is engaged in farming and stock-raising. Notwithstanding the great increase of population, the products of the soil are amply sufficient to supply the wants of the people. Owing to the high price of labor here, as in all mining countries, the farmers are not able to compete successfully in foreign markets with those of more favorable localities. The crops generally raised are wheat, oats, barley, flaxseed, and corn. All kinds of vegetables are grown successfully. Idaho can not be excelled by any region east of California for the production of fruit. The dry, desert-looking sage-brush lands

are in a few years, by artificial irrigation, turned into the finest farms with much less trouble (after the water is obtained) than attends a similar transformation in the States east of the Rocky mountains. What the farmers, miners, fruit-raisers, and stock-growers of Idaho require more than anything else is cheap transportation.

Mines and Mining.—The mineral resources of Idaho constitute one of its greatest interests. In the great Wood river mineral belt the mines have improved as greater depth has been reached, and the same news comes from every portion of the Territory. The product of precious metals during 1885 was:

COUNTIES.	Lead.	Gold.	Silver.	Total value of gold and silver.
Ada.....		\$2,870		\$2,870
Alturas.....	\$48,185	82,585	\$2,043,025	2,125,610
Bingham.....		8,030		8,030
Boise.....		619,600	123,000	742,600
Cassia.....		12,929		12,929
Custer.....	97,840	118,560	800,000	918,560
Lemhi.....	58,044	53,207	23,740	76,947
Nez Percé.....		10,000		10,000
Owyhee.....		184,940	87,851	172,291
Shoshone.....		800,965		800,975
Lead.....		\$639,069	\$1,383,686	\$3,027,116
				\$4,865,802
				659,069
Total value gold, silver, and lead, add 15 per cent. estimated amounts unreported.....				\$5,004,871
Grand total.....				750,731
				\$5,755,602

Idaho County, from which no report was received, is included in the estimated amount.

Finance.—The total amount of warrants drawn by the Comptroller on the general fund in payment of claims during the year ending June 30, 1886, was \$50,803.94. This does not embrace any payments made on account of the Capitol building, or the payment made under the appropriation for the erection of the Insane Asylum, or for the redemption of matured bonds. The reports from the county auditors give the valuation of the real and personal property in the Territory for the year 1885, as follows, viz. :

COUNTY.	Amount.	COUNTY.	Amount.
Ada.....	\$2,596,258 80	Lemhi.....	\$476,080 00
Alturas.....	3,424,444 88	Nez Percé.....	1,712,762 00
Bear Lake.....	464,021 35	Oneida.....	734,210 50
Bingham.....	2,257,462 00	Owyhee.....	950,585 00
Boise.....	681,116 93	Shoshone.....	215,000 00
Cassia.....	644,199 00	Washington....	635,645 90
Custer.....	280,639 00		
Idaho.....	640,671 00	Total.....	\$16,230,461 54
Kootenai.....	477,395 68		

This shows an increase of a little less than three quarters of a million dollars over the assessed valuation of the previous year. The rate of keeping the Territorial prisoners under contract with the officers of the United States is now fixed at 75 cents per diem. The total expense for their keeping for the year ending June 30, 1886, was \$15,938.75, not including the mileage allowed by the Territory

for their transportation from the places of sentence to the United States Penitentiary. The amount paid through the Comptroller's office for providing for the insane for the year ending June 30, 1886, was \$15,274.49. This amount represents expenditures of large sums other than for the actual cost of treatment. The revenue is derived mainly from the sale of business licenses, from poll-taxes, and an ad-valorem tax on real and personal property. The returns for the year ending June 30, 1886, show that the Territorial portion of licenses sold amounted to, in gross, \$8,538.58; poll-taxes collected, \$7,083.54; ad-valorem tax collected, \$39,547.62. In addition to the above there is an income arising from the admission fees of attorneys, and from notaries' fees, which is devoted to the purchase of books for the Territorial Law Library at Boisé City.

The outstanding bonded indebtedness of the Territory is as follows: Bonds bearing 10 per cent. interest, \$46,715.06; bonds bearing 6 per cent. interest, \$100,000. Total, \$146,715.06.

Schools.—There has been marked and general growth and improvement in the character and grades of the schools, due largely to the higher qualifications demanded of teachers, the use of better and uniform text-books, the more frequent holding of teachers' institutes, and the increased interest among parents in educational affairs. In 1876 there were 2,777 children of school age; now there are over 18,000. Then there were 77 school districts; now there are over 300. Then there was reported as paid out for school purposes \$16,509.55; this year the amount exceeds \$130,000. In 1876 there were but ten counties; now there are fifteen.

Indians and Reservations.—The following statistics are from the most reliable sources available as to the population and acreage of the Indian reservations within the Territory, viz.:

NAME.	Population.	Acres.
Cœur d'Alene.....	600	595,500
Fort Hall.....	1,500	1,202,330
Nez Percé.....	1,500	746,651
Lemhi.....	800	140,000
Western Shoshone	400	131,300
Total.....	4,800	2,818,781

There is a small relative number in each tribe who, seeing the tendency of affairs, have learned to farm on a small scale, send their children to the reservation schools, live in houses, and generally conform to the habits and customs of the whites. But the wild instincts of their race are still predominant in the majority, and the process of civilization is slow with all. "The Cœur d'Alene Indians and also the Nez Percés holding reservations that lie between the rapidly growing mountain mining-towns and the lower country, from which their supplies are drawn, occupy," says the Governor, "a position seriously detrimental to both commercial and mining interests. The wild speculation of the Cœur d'Alene mines has ceased, and in its place is the steady output of

ore, in-rush of men who go to stay, and the enormous increase of business. To reach these mines the Bitter Roots must be scaled from the east, or else the transportation of supplies must be made across the reservation. The Cœur d'Alene Lake, which lies midway in the reservation, is a deep navigable body of water, and three large rivers, whose head-waters are among the mining-camps, supply it. For miles around it are magnificent natural meadows, and beyond them are the forests of splendid timber, while the precious metals are abundant along the streams and throughout the mountains; and yet 600 Indians hold and own 600,000 acres of this land of inexhaustible resources, without ambition to develop them for their own benefit, and refusing to permit others to do so. South of the Cœur d'Alene is the Nez Percé Reservation, consisting of grazing and timber lands, abounding with streams and rivers, capable of phenomenal production, nearly three quarters of a million of acres inhabited by 1,500 Indians."

Live-Stock.—The live-stock interests of Idaho are steadily increasing, and are to be ranked among its great resources. During the past year the losses from exposure and diseases combined have been comparatively nothing, although the herds thrive summer and winter upon the same ranges. It is estimated by those associated with the stock-growing interests that fully 500,000 head of horses and cattle annually graze and fatten upon the hills and table-lands of the Territory. The number of sheep will probably exceed 250,000 head. The exports of horses and cattle by the Oregon Short-Line Railroad in Idaho for the present year will probably exceed 30,000 head.

Political.—The Republican Territorial Convention met at Hailey, on September 8, and nominated Frederick T. Dubois for delegate to Congress. The following are extracts from the platform :

We especially denounce the retention, as Commissioner of the General Land-Office, of that arch-enemy of the West, Mr. William A. J. Sparks. He has threatened and annoyed the homestead and pre-emption settler by persistent and malicious misrepresentations, by partial and prejudicial investigations, by vexatious rulings and ill-considered orders, and by attempted manipulation of plain acts of Congress. He has filled the Territories with irresponsible spies in the shape of special agents, and through his auxiliaries proclaims the pioneers a set of robbers and thieves. He has instigated malicious indictments for the cutting of timber, and retarded to the extent of his ability the general progress and development of all Western industries.

We denounce the attempt to change the measure of values, in the face of the world's great debts, from gold and silver to gold alone, as an act of monstrous injustice; and we demand that both gold and silver, as established by the Constitution, shall be maintained as the basis of our money system. We demand the free coining of gold and silver and their perfect equality before the law.

We extend to the anti-Mormon Democrats of this Territory our fraternal greetings, and ask of them their cordial support, in order to sustain the "test-oath" as it now stands; and we pledge ourselves to such further legislation as may be necessary to banish the

teachings and practices of Mormonism from this Territory. We make no distinction between those who openly practice the crime of polygamy and those who counsel and assist them, and who are all guilty alike of treasonable practices and teachings against our Government, and who are but willing slaves of criminal masters.

We are unalterably opposed to the setting apart of so vast a portion of the public domain for the purpose of Indian reservations.

The principle of public regulation of railway corporations is a wise and salutary one for the protection of all classes of people; and we favor legislation that shall prevent unjust discrimination and excessive charges for transportation, and that shall secure to the people and the railways alike equal protection of the laws.

The Republican party, having its birth in a hatred of slave-labor, and a desire that all men may be truly free and equal, is unalterably opposed to placing our workingmen in competition with any form of servile labor. In this spirit we denounce the importation of Chinese contract-labor as an offense against the spirit of American institutions; and we pledge ourselves to oppose Chinese immigration, to push forward for such further legislation as is necessary to eradicate, from our system, all forms of contract-labor, whether it be prison-labor, or imported contract-labor from Europe or Asia.

We demand equal pay for equal work for both sexes. We demand the enactment of laws providing for arbitration between employers and employed, and to enforce the decision of the arbitrators.

The Democratic Territorial Convention met at Bellevue on September 10, and renominated John Hailey for delegate to Congress. The following are extracts from the platform:

Resolved, That this convention proudly invites attention to the fact that the last Democratic House of Representatives passed bills forfeiting and restoring to the public domain railway land-grants amounting to over 75,000,000 acres, and also the further fact that in the Forty-eighth Congress the Democratic lower house passed the Reagan Interstate Commerce bill, which failed of passage in the Republican Senate; also that in the last session of Congress the Reagan bill was again passed by the Democratic lower house.

Resolved, That we denounce the infamous practice of bigamy, polygamy, and unlawful cohabitation; and that we pledge our party to a rigid enforcement of the laws against such crimes, and as proof of our sincerity we point with pride to the record of convictions had by a Democratic United States Attorney before a Democratic judge, during the past year of a Democratic national Administration, which speaks louder than the windy professions unaccompanied by any performances of past Republican officers in Idaho.

Resolved, That we are unalterably opposed to any dictation in State or political affairs by church domination, as heretofore exercised by the Mormon Church.

Resolved, That we are unalterably opposed to Chinese immigration, and demand the abrogation of the Burlingame-Swift treaty, a legacy of the Republican party, through whose loop-holes slave-labor creeps upon our shores.

Resolved, That the rapid increase of the white population of the United States demands that Congress take speedy and effective steps to have all the Indians in the United States select lands in severalty, in quantities not to exceed eighty acres per capita, within the limits of their respective Indian reservations, and that the remainder of the lands on such Indian reservations should be restored to the public domain, subject to homestead entry by actual settlers.

Resolved, That this convention is in favor of the passage of an act of Congress providing for the free

coinage of both silver and gold, by the terms of which act all gold and silver bullion offered at the several mints and assay-offices of the United States shall be received in exchange for gold or silver coin, or certificates at the rate now fixed by law for standard dollars of gold and silver, which certificates shall be receivable for all public purposes, and interchangeable for gold or silver, as the case may be, and that there be no discrimination by United States Treasury officials in the use of gold and silver for any purpose whatever, consistent with existing laws, including the payment of the interest-bearing debt.

On November 2 the Republican candidate was elected by a vote of 7,842 against 7,416 for his opponent. In the Legislature there are six Republicans, four Democrats, and two Independents in the Council, and fourteen Republicans to ten Democrats in the House. This body met on December 13, and was in session at the close of the year.

ILLINOIS. State Government.—The following were the State officers during the year: Governor, Richard J. Oglesby, Republican; Lieutenant-Governor, John C. Smith; Secretary of State, Henry D. Dement; Auditor, Charles P. Swigert; Treasurer, Jacob Gross; Attorney-General, George Hunt; Superintendent of Public Instruction, Henry Raab; Railroad and Warehouse Commissioners, John J. Rinaker, B. F. Marsh, and W. T. Johnson. Supreme Court: Chief-Judge, John H. Mulkey; Associate Justices, Alfred M. Craig, Benjamin R. Sheldon, Simeon P. Shope, Benjamin D. Magruder, John M. Scholfield, and John M. Scott.

Political.—On November 2 an election was held for State Treasurer, Superintendent of Public Instruction, Congressmen, and members of the Legislature. The Republican candidate for State Treasurer was John R. Tanner, and the Democratic, H. F. J. Ricker. The Republicans nominated Richard Edwards for Superintendent of Public Instruction; the Democratic nominee was Franklin J. Olds. The Republican candidates were elected. The vote for State Treasurer was as follows: Republican, 276,680; Democratic, 240,864; Labor, 34,832 (25,084 cast in Cook county); Prohibition, 19,766; scattering, 1,039. The Legislature consists of 32 Republicans, 17 Democrats, and 2 others in the Senate; and of 78 Republicans, 64 Democrats, and 11 others in the House. Six Democrats (Second, Twelfth, Thirteenth, Sixteenth, Seventeenth, and Nineteenth Districts) and 14 Republicans were elected to Congress. The following amendment to the Constitution was adopted by a majority of 19,525:

That hereafter it shall be unlawful for the commissioners of any penitentiary or other reformatory institution in the State of Illinois to let by contract to any person or persons or corporations the labor of any convict confined within said institution.

Disturbances of the Peace.—The Governor, in his message to the Legislature of 1887, says: “In April, 1885, the strike of the quarrymen of Will and Cook Counties grew to such dimensions and assumed such character, that

the sheriffs respectively of those counties felt obliged to call upon the Governor for military assistance. On the 1st day of May a force deemed sufficient was called out and ordered to report, first to the Sheriff of Will, and subsequently to the Sheriff of Cook County. The men who went out on the strike, instead of standing on the justness of their demand for an increase of wages, and, if the demand should be denied, of retiring peaceably from the quarries and giving way to such fellow-laborers as might be willing to take their places and wages, insisted on occupying the quarries and driving away all comers in their stead. This cause led to riot, the riot became a mob, and very soon the mob grew threatening and defiant. The officers of the law were, as they claimed, unable to preserve the peace. The military force, under the direction of the Sheriff of Will County, soon dispersed the rioters, who reassembled again across the line in the County of Cook and became more threatening than before. The sheriff of that county directed the commanding officer of the military force to disperse them. They stubbornly resisted, were fired upon, and three of them fatally wounded before the peace could be restored. In April, 1886, the strike of the switchmen on all the railroads centering at East St. Louis, in St. Clair County, again occasioned the use of the militia." On March 29 the sheriff of that county called on the Governor for military aid. The latter urged the employment of more deputies and further efforts to preserve the peace by the civil power. The Governor continues: "The sheriff did increase the number of his deputies, and did summon the *posse* of his county, and made some additional effort to restore the supremacy of the law. Finally, on the 9th of April, after such effort as had been made to restore peace and order, he again made formal request for aid, and I thereupon immediately ordered a necessary militia force to report to him. This force was from time to time relieved by additional force sent to supply the withdrawal of companies after a term of duty from ten to fifteen days each, until finally, on the 24th of May, all the companies were relieved from duty there. During the interval between the sheriff's first and second request for aid, the railroad companies, or some of them, advertised for and secured at high rates of wages the services of men who seem to have come from other States, and who were appointed by the sheriff of the county deputies to aid him in preserving the peace. This force, such as it was, felt called upon, on the 9th day of April, to fire upon a crowd of people gathered upon a bridge, some of whom probably were annoying them, and killed and wounded six or eight persons. After the arrival of the militia quiet was restored and the usual methods of trade under peace and order resumed. On Nov. 7, 1886, the Sheriff of Cook County personally called upon me and urged the use again of the militia in that

county. He presented a formal request for such aid, dated Chicago, November 6. In response to this request of the Sheriff of Cook County, I issued the necessary orders for a sufficient militia force to assemble, and to report to him and aid him in the execution of the law in that county. On the 20th day of November the sheriff informed me there was no further occasion for the use of such force, and the militia, under proper order, was relieved from further duty in that county. There were several other occasions of violence in Cook County and in the city of Chicago, somewhat formidable and threatening; but as no requisition was made upon me either by the sheriff of the county or the mayor of the city, the militia was not called out." (See ANARCHISTS.)

Assessed Valuations.—The local assessors in the different counties of the State returned an aggregate valuation of \$726,178,132 for 1886, against \$733,533,951 for 1885, being a decrease of \$7,355,819. Of course, there is no such decrease in the value of property in the State; but the persistent tendency of the people to underestimate their possessions when the assessor is around, tells now, as it has told for many years, on the apparent wealth of the State. The assessments returned from the different counties exhibit strange discrepancies. Take the values of improved lands, for example. In St. Clair County they are set down at \$29.98, being actually \$17.39 an acre above the average for improved lands for the State. The only other county that is valued above the teens is Menard, \$20.82 an acre. But, in the adjoining county of Mason, improved lands are assessed at \$11.28 an acre. In Sangamon they are set down at \$17.06, and in McLean at \$15.23. The average returned value of lands, improved and uninimproved, is \$10.76 an acre. In this is found the reason for the increase in the rate per cent. of taxation.

The Governor refers at length to the inadequate and inconsistent valuations under the existing law, and says:

Consideration of the subject induced the last General Assembly to provide, by joint resolution, for a commission of twelve men to propose and frame a revenue code. Under such joint resolution a committee was appointed, composed of able, experienced, and responsible citizens, familiar with our revenue system and deeply interested in the subject. The commission diligently applied themselves to a study of the whole subject of taxation and revenue, and I invite your serious and earnest attention to the revenue code submitted. It substantially divolves the State from county and all subordinate tax-laying powers for purposes of revenue. It leaves to all such local and subordinate powers ample resources and means of taxation for all the purposes of local self-government. It enlarges and greatly improves the means and instruments for assessing and collecting such local taxes, and provides, as has never been done before by our revenue laws, for more certainly securing a fair cash valuation and assessment of all property in all localities, and for bringing to light, listing, and taxing personal property, credits, shares of stock, and the various evidences of intangible and hidden wealth, and to that extent relieving real estate and visible personal property from the undue proportions

such property has heretofore been compelled to bear. Whenever, for purposes of State revenue, the proposed code withdraws from those local powers subjects of taxation, it also, in consideration of such withdrawal, relieves such subordinate localities from contributions of revenue to the State, and to a larger amount than has heretofore been received by such subordinate localities in revenue from the subjects of taxation thus withdrawn. I desire in this connection further to call the special attention of the Legislature to the provisions of the proposed code looking to the divorce of the State from local taxation, by providing for the direct payment into the State treasury of all the taxes assessable, from corporations of a *quasi-public* character, and prescribing the method for the ascertainment, levy, and collection of such taxes peculiar to the subjects of taxation to which they apply.

The system recommended dispenses with the necessity for a State Board of Equalization; but contemplates a State Board of Tax Commissioners, on whom it devolves important duties as to the supervision of the entire revenue system of the State and its enforcement.

Penitentiaries.—The prison at Joliet continues self-supporting. In addition to necessary and permanent expenses, the commissioners were able, out of receipts from contract-labor, to make many needful repairs and improvements on and about the buildings and grounds without impairing the \$50,000 contingent fund. The discipline and health of the convicts have been maintained at a high standard.

The prison at Chester is of the same character with the one at Joliet, as to treatment, discipline, reformation, and labor of convicts; but it is uncompleted. There is an annual average of 1,583 convicts at Joliet in 900 cells; and at Chester in 400 cells there were, on Oct. 1, 1886, 741 prisoners, and on Dec. 28, 1886, the number had increased to 785. There has been great improvement at Chester in several respects, but particularly in its financial management. The last General Assembly appropriated \$28,000 for buildings, and the whole sum has been expended as provided for. With reference to the employment of convicts, the Governor says:

Effort was made under the law of 1867 to adopt the contract system. After two attempts, and failure in both, to obtain satisfactory bids for convict-labor, the State-account plan was resorted to. For a while it seemed success might be possible under it. I have no doubt, however, that the general temper prevailing at the time, as to better treatment of criminals, directed more attention to the humane provisions of the law than to its financial character. All were hoping for a marked decrease of crime under a more enlightened liberal treatment of prison criminals. It soon became apparent that, however much the criminal was benefited, the State was losing and crime increasing. An experience of four years of loss to the State, until finally such loss amounted to several hundred thousand dollars, induced a change from the State-account to the contract plan. This system has been strictly adhered to ever since. At Joliet, where it has been fairly tested, it establishes the fact that a State may safely extend to a convict all the benefits of humane treatment, good cells and beds, abundance of heat, light, good, healthy food, cleanly and comfortable clothing, the opportunity to see friends and communicate with them, to enjoy the privileges of books and the ministrations of religion, and at the same time by reasonable labor relieve the people of

the State from taxation to maintain its penitentiaries. The adoption of the constitutional amendment at the last general election in our State prohibits the Commissioners of Penitentiaries, or other reformatory institutions, from letting by contract the labor of any convict confined within such institutions.

Pleuro-pneumonia.—The Governor says:

You will notice, in the annual report of the Board of Live-Stock Commissioners, that prior to September last it was thought contagious pleuro-pneumonia had entirely disappeared from the State. The supplemental report, however, discloses an alarming extent of affairs in connection with that pest. The board, with the means at hand, has dealt vigorously with the disease, and seems again to have it under control. Large expenditures of money became necessary to meet the critical conditions which have existed from September up to the present time. The evidences submitted in the supplemental report establish, I think, beyond reasonable question, that contagious pleuro-pneumonia exists to-day in Cook County; that it has prevailed there since September last to an alarming extent.

Soldiers' and Sailors' Home.—The act of 1885, for the establishment of the Soldiers' and Sailors' Home, has been carried into effect. The commissioners appointed under the act selected a site for the Home in Adams County, near the city of Quincy, on the bank of Mississippi river; a beautiful and commanding location, well adapted for the purpose. The trustees appointed under the act have substantially completed the Home. The plan contemplates a main or headquarters building, and a system of cottages, each one a home for 33 soldiers. On the 20th of October the Home was dedicated. It will be ready for occupancy as soon as the necessary appropriations shall be made. Provision is made for the comfortable accommodation of 264, and temporary accommodations can be provided for about 150 additional inmates.

State Charitable Institutions.—The sum of \$1,000,000 annually will be required for these institutions for the next two years. In addition, \$800,000 will be asked for purposes of enlargement of capacity of the respective institutions, and other special appropriations amounting to about \$700,000, a total for two years, for ordinary and special purposes, of \$3,500,000.

RECEIPTS AND DISBURSEMENTS.

The amount of all funds in the State treasury, Oct. 1, 1884, was	\$3,902,511 69
The receipts from all sources from Oct. 1, 1884, to Sept. 30, 1886, inclusive, were as follow :	
General Revenue Fund.....	\$4,666,448 85
State School Fund.....	2,164,739 49
Unknown and Minor Heirs' Fund.....	2,471 90
Local Bond Fund.....	2,757,686 96
	\$9,591,842 20

Total..... \$18,498,658 89
The disbursements from Oct. 1, 1884, to Sept. 30, 1886, inclusive, were as follow :

General Revenue Fund.....	\$5,180,440 51
State School Fund.....	2,132,088 87
Unknown and Minor Heirs' Fund.....	579 18
Local Bond Fund.....	2,779,088 56
	\$10,042,142 07

Balance of all funds in State treasury, Oct. 1, 1886..... \$3,451,711 82

Railroads.—Fifty-eight roads made reports in 1886, showing 9,441 miles of main track and

branches, 548 miles of double track and 1,832 miles of sidings, or a total of 11,825 miles of road in the State. Fifty-three of these roads report a capital stock of \$714,133,228, an increase of \$31,000,000 over the amount in the previous year. The funded debts of all the reporting roads is \$753,184,555, and their floating debts aggregate \$50,365,000. The cost of their construction and equipment is reported at \$1,457,317,783.

The gross income of these roads for the year, from all sources, was \$198,950,174, being a loss of \$173,159, as compared with the previous year. The gross earnings on Illinois business alone was \$55,677,351, a decrease of over \$1,200,000. The gross receipts for the year from Illinois business, after deducting operating expenses and taxes, are \$20,115,898. Forty-nine reporting roads show an aggregate gross profit of a little over \$27,000,000, and four an aggregate gross loss of a little over \$20,000. The aggregate operating expenses and taxes are \$127,625,993, being \$8,922,930 less than the previous year.

Eleven corporations paid dividends during the year ending July 30, amounting to \$19,480,000, while the previous year ten corporations paid dividends amounting to \$20,100,000.

The total number of passengers carried was 55,525,599, and the average receipts per passenger 2.87 cents.

There are 144,589 persons in the employ of the reporting roads, receiving pay to the amount of \$76,862,000. Of these 53,160 are employed on Illinois lines, and receive an aggregate of \$3,037,926 in salaries.

The roads reporting carried 7,738,498 tons of grain during the year, 2,543,139 tons of live-stock, and 9,604,218 tons of coal—a total tonnage carried of 19,884,855. The average receipts per ton per mile for freights were 1¹/₂ cent, and the average cost was .63 cent. There were 368 persons killed by railroad accidents in the State, of which number 12 were passengers and 112 employés. The number of accidents to employés while coupling cars was 322. The amount of taxes paid by railroads in the State was \$2,334,935, an increase of \$220,119 over 1885, and \$273,417 over 1884.

Anti-Saloon Republican Convention.—The first National Convention of the Anti-saloon Republicans held its session in Chicago on September 16. Senator Henry W. Blair, of New Hampshire, was made temporary chairman, and ex-Senator William Windom, of Minnesota, permanent chairman. The committee on credentials reported that 187 accredited delegates were present, as follow : Illinois, 40; Iowa, 20; Kansas, 30; Indiana, 18; Maine, 1; Vermont, 9; New York, 6; Rhode Island, 7; Michigan, 3; Wisconsin, 12; Massachusetts, 12; Nevada, 1; Minnesota, 15; Texas, 2; Dakota, 1; Pennsylvania, 1; Ohio, 1; New Jersey, 7; New Hampshire, 2.

A National Committee was appointed, and the following platform adopted :

The anti-saloon Republicans, by their representatives in the national conference assembled, do declare as follows :

1. That the liquor-traffic as it exists to-day in the United States is the enemy of society, a fruitful cause of corruption in politics, the ally of anarchy, a school of crime, and with its avowed purpose of seeking to corruptly control elections and legislation is a menace to the public welfare, and deserves the condemnation of all good men.

2. That we declare war against the saloon, and hold it to be the supreme duty of the Government to adopt such measures as shall restrict it and control its influences at the earliest possible moment, and suppress it altogether.

3. We believe the national Government should absolutely prohibit the manufacture and sale of intoxicating liquors in the District of Columbia and in all the Territories of the United States.

4. We believe the best practical method of dealing with the liquor-traffic in the several States is to let the people decide whether it shall be prohibited by submission of the constitutional amendments, and until such amendments are adopted by the passage of local-option laws.

5. That inasmuch as the saloon business creates a special burden of taxation upon the people to support courts, jails, and almshouses, therefore, a large annual tax should be levied upon the saloons, so long as they continue to exist, and that they should be made responsible for all public and private injury resulting from the traffic.

6. That the Republican party, wherever and whenever in power, will faithfully enforce whatsoever ordinance, statute, or constitutional amendments, may be enacted for restricting or the suppression of the liquor-traffic.

7. That we approve the action of Congress and those States that have done so, in providing for teaching the physiological effects of intoxicants in our public schools, and that we earnestly recommend to every State Legislature the enactment of such laws as shall provide for thorough teaching of such effects to our children.

8. We demand that the Republican party, to which we belong, and whose welfare we cherish, shall take firm and decided stand as the friend of home and the enemy of the saloon, and in favor of this policy and these measures we pledge ourselves to do our utmost to cause the party to take such stand, and we call upon all temperance men and all friends of humanity, of whatever party or name, to join with us in securing these objects, and in support of the Republican party so far as it shall adopt them.

INDIA, an empire in Southern Asia, under the government of Great Britain. The Secretary of State for India, who is a member of the English Cabinet, is chief director of Indian affairs. The Governor-General of India, commonly styled the Viceroy, appointed by the Crown, is vested with executive authority in India, and acts under the orders of the Secretary. Lord Randolph Churchill succeeded the Earl of Kimberley as Secretary of State for India in June, 1885. The Governor-General is the Earl of Dufferin, who was appointed Oct. 28, 1884. The Secretary is aided in the government of the Indian Empire by a Council of fifteen members, the major part of whom must have served or resided in India. No member of this Council can sit in Parliament. The government of India is exercised by the Council of the Governor-General, consisting of seven members, all of whom are appointed by the Crown.

Area and Population.—The area of the British possessions in India is 874,220 square miles, and the population in 1881 was 198,755,993. Besides the provinces under direct British administration, there are a number of feudatory or native states, having an area of 509,284 square miles, and a population of 55,150,456, making the total area under British control 1,383,504 square miles, with a population of 253,982,598. Of these, 129,997,810 were males and 123,984,788 females. The British-born population, exclusive of the army, amounted in 1881 to 89,798, of whom 77,188 were males and 12,610 females. The area and population of states and groups of states were as follow:

NATIVE STATES.	Square miles.	Population.
Baroda	8,570	2,185,005
Central Indian Agency.....	75,079	9,261,907
Hyderabad.....	81,807	9,845,594
Mysore.....	24,723	4,186,188
Rajpootana Agency.....	129,750	10,268,392
Bengal.....	86,634	2,845,405
Northwest Provinces.....	5,125	741,750
Punjab	35,517	8,861,638
Central Provinces.....	28,534	1,709,720
Madras.....	9,438	3,844,849
Bombay	75,738	6,941,249
Total native states.....	509,730	55,191,742

The Central Indian Agency embraces 82 separate states; the Rajpootana Agency, 20; the Punjab, 36; the Central Provinces, 15. In Bombay, there are 20; in Madras, 5; in Bengal, 4; in the Northwest Provinces, 2.

The leading languages of India, with the numbers who speak them, are as follow:

LANGUAGES.	Population.	LANGUAGES.	Population.
Hindustani.....	82,497,168	Sindhi.....	3,718,961
Bengali.....	38,965,428	Burmese.....	2,611,467
Telugu.....	17,000,358	Hindi.....	1,880,777
Mahratt.....	17,044,634	Assamese.....	1,361,759
Punjabi	15,754,739	Kol	1,140,489
Tamil.....	18,068,279	Sonthali.....	1,130,509
Guzarati.....	9,620,688	Gondi.....	1,079,565
Canarese	8,357,027	Pushtu and Afghani	915,714
Oriya.....	6,819,112	Karen.....	553,548
Malayalam	4,848,400		

Of the total population under British rule, or suzerainty, 69,952,647 persons, including 19,000,000 females, are directly employed in agriculture; 21,943,019, of whom 8,184,508 are females, in handicrafts and industry; 2,149,629 males and 651,966 females are employed as domestic servants; 791,379 males and 17,764 females in offices connected with local administration; 311,070 males and 1,682 females are connected with the army; 601,164 males and 94,251 females are engaged in offices connected with religion; 983,869 males and 124,409 females in mercantile employments; 886,148 males and 286,464 females as general dealers; 1,123,438 males and 18,378 females in transportation; and 7,248,491 males and 5,244,206 females as laborers.

The following towns contain over 100,000 inhabitants: Calcutta, with suburbs, 871,504; Bombay, 773,196; Madras, 405,848; Hyderabad, 354,692; Lucknow, 261,303; Benares, 199,700; Delhi, 173,393; Patna, 170,654; Agra, 160,203; Bangalore, 155,857; Amritsar,

151,896; Cawnpore, 151,444; Lahore, 149,369; Allahabad, 148,547; Jeypoor, 142,578; Rangoon, 134,176; Poona, 129,751; Ahmedabad, 127,621; Surat, 113,417; Bareilly, 109,844; Baroda, 101,818.

The number of emigrants in 1885 was 22,384, of whom 4,109 went to Mauritius, 3,548 to Natal, 6,304 to British Guiana, 3,932 to the British West Indies, 2,316 to Fiji, 495 to the French West Indies, and 1,679 to Surinam.

Education.—The total expenditure on education in India in 1884 was £2,164,918. There are three universities, and in 1884 there passed 1,739 candidates for admission to the University of Madras; 1,265 to the University of Calcutta, and 599 to the University of Bombay. These universities grant degrees in arts, law, medicine, and civil engineering. There were also, in 1884, 95 colleges, having 8,717 students; 105,514 institutions for general instruction, with 3,854,987 pupils; 309 institutions for special education, with 11,404 pupils, and 26,874 private schools, with 340,610 pupils.

Commerce.—The total value of the imports of merchandise during 1884-'85 was £55,702,000, against £55,279,000 in 1883-'84; the value of the exports, £83,170,000, against £88,090,000. The imports of specie were £13,888,000; the exports, £1,969,000. The imports of textile manufactures amounted to £27,907,000. Other manufactured articles were imported to the amount of £4,552,000. The exports of textiles were of the value of £6,641. Textile materials were exported to the amount of £19,450,000. The imports of tea, coffee, spices, and sugar were £3,069,000 in value, and the exports £6,731,000. The exports of rice, paddy, and cereals were £13,502,000; of seeds and fruits, £10,764,000. The imports of beverages were £1,218,000; of coal, £1,266,000; of metals, £4,779,000. The imports of drugs, oils, and gums were £1,007,000; exports, £6,287,000.

The imports, during the year 1885-'86, including specie, amounted to £67,289,381; the exports to £84,915,677. The merchandise movement was smaller, but there was a slight increase in the total volume of trade, owing to a larger importation of treasure. Over 55 per cent. of the total trade was with Great Britain, and 12 per cent. with China and Hong-Kong. The exports of cotton manufactures to China are increasing, especially of yarn, of which 68,500,000 pounds, valued at £2,392,500, were exported in 1885-'86. The tea exports, chiefly to England, were 68,784,249 pounds.

Wheat-Culture.—The Northwest Provinces and Oude are the main seat of wheat-cultivation. They comprise an alluvial plain, 106,111 square miles in extent. The soil is clay and sand, entirely free from stones. Two crops are grown during the year. The farmers use the rudest implements. With the small and ill-fed cattle of the country, only three quarters of an acre can be broken daily by a plowman. The ground is plowed over twenty times, and the earth pulverized by dragging a log of wood

over it. The harvester, with his small sickle, cuts one twelfth of an acre in a day. The grain is threshed out by driving cattle around a stake on the thrashing-floor. The straw, trampled very fine, constitutes the food of the cattle. The growing grain is watered three times, at an average cost of \$2.50 an acre. The total cost of raising an acre of wheat, including rent, is a little over \$10. The average crop is 17 bushels on irrigated and 10 on dry land. The average price on the spot is 68 cents a bushel. The value of the wheat and straw raised on an acre is about \$14.50. The profit on the wheat-crop is little more than enough to pay the various tithes, and the farmers are only able to live by the crops of coarser grain, vegetables, herbs, or fruits grown during the rest of the year. The area devoted to wheat in the Northwest Provinces and Oude, in 1885, was 5,298,026 acres, an increase of 7 per cent. over the previous year. The crop was 2,100,000 tons, of which 1,450,000 tons was required in India for food, and 300,000 tons for seed, leaving 350,000 tons for export. The total wheat area of India was 27,820,223 acres, producing 299,155,584 bushels. The total export was 56,000,000 bushels. The cost of a quarter of wheat at Delhi is \$4.85, the freight to the sea-board \$1.55, and the ocean-freight to London \$1.60, making a total of \$8. American wheat, costing \$7.94 at Chicago, \$1.50 for transportation to New York, and 56 cents for shipping freight, costs, therefore, \$2 more to lay down at London than the Indian wheat.

Navigation.—There were 5,150 vessels, of 3,291,009 tons, entered at the various ports in 1884-'85. Of these, 1,892, of 2,581,356 tons, were British; 1,174, of 146,687 tons, belonged to British India; 787, of 494,284 tons, to foreign countries; and 1,297, of 68,685 tons, to native states. The number cleared was 5,188; the tonnage, 3,358,761.

Railroads.—There were 12,376 miles of railroad in operation on March 31, 1886. The number of passengers carried during 1885 was 80,864,779, against 73,815,119 in 1884; the number of tons of merchandise transported, 18,925,385. The receipts were £17,989,625; the expenses, £8,863,294.

Telegraphs.—The length of telegraph lines in 1886 was 25,387 miles; the length of wires, 74,973 miles. There were besides 142 miles of cable. The number of messages in 1885 was 2,032,651; the receipts, £570,552; the expenses, £788,435.

Finances.—The receipts of the Indian Exchequer, in 1884-'85, amounted to £70,690,681, of which sum £21,832,211 came from the land revenue, £8,816,469 from the opium monopoly, £6,507,236 from the salt-tax, £8,606,622 from stamp-duties, £4,011,867 from excise, £2,791,461 from provincial imposts, £1,029,943 from customs, £511,828 from licenses, £286,784 from registration fees, £986,984 from forests, £699,017 from tributes, £1,047,130 from the

post-office, £570,552 from the telegraphs, £180,164 from the mint, £546,059 from the courts, £14,189,203 from public works, and £3,076,751 from minor sources.

The total expenditures amounted to £71,077,127, of which £17,527,406 were expended in England. The interest on the public debt amounted to £4,619,443; the cost of collection of the land, opium, and salt taxes, the administration of the forests, etc., was £8,082,777; the expenses of the telegraphs, posts, and mint were £2,145,249. The expenditure for legislation and justice was £3,305,978; for police, £2,832,725; for the navy, £531,973; for public instruction, £1,238,787; for foreign affairs, £799,028; for ecclesiastical and medical affairs, £1,367,751; for pensions and relief, £3,217,355; for famine-relief works, £1,548,357; for the army, £16,963,803; for public works, £20,471,068.

The budget for 1885-'86 makes the total revenue £73,598,100, and the expenditures £76,488,900; that for 1886-'87 estimates the receipts at £75,798,700, and the expenses at £75,616,500. The uncertainty with regard to the effect of the opium convention with China, and the continued fall in the price of silver, make the prediction of the revenue returns, which are always uncertain on account of the variable yield of some of the taxes, more unsafe than usual. The Afghan frontier defenses are provided for by an addition to the public debt. For the Burmese war no adequate provision has been made. Sir Auckland Colvin, the financial officer, has sought a means of relief by reintroducing an income-tax, in addition to the license-tax imposed a few years before. He expects to obtain £776,100 from this source. There is a considerable professional, commercial, and manufacturing class, composed mainly of Englishmen, that is rapidly growing in numbers and wealth, but has hitherto almost entirely escaped taxation. Yet it is not certain that this modest sum can be collected from them, as its collection depends on their honesty and their willingness to bear a share of the public burdens. The famine-relief and irrigation projects have been deferred, and the funds diverted to war expenditures. The restoration of a high salt-tax would provide a sure source of income, but at the cost of human life and suffering, for it bears entirely on the poorest classes. The loss of opium revenue on account of the new convention with China is estimated at £250,000 a year. The receipts from opium, for 1886-'87, were reckoned at £6,577,000. The estimates for 1886-'87 are calculated on the basis of the actual gold value of the rupee, and not, as heretofore, on the ratio of ten rupees to a pound sterling.

The Silver Question.—The currency question is a pressing one to the Indian Government, because there are heavy fixed charges, such as the interest on the railroad-debts that are payable in gold, as are also a part of the salaries of the officials. Those who are paid in silver,

and all of the influential class who have stated incomes, complain because the purchasing power of their incomes has declined. The Indian officials are for these reasons usually bimetallists, and have for years urged the British Government to seek an international arrangement of the silver question that would relieve India from the fiscal derangement and uncertainty consequent on the continued depreciation of silver. The English officials have as a rule held to the theory that it is an interference with a natural law of demand and supply to attempt to fix the relative values of gold and silver by law, and that such an attempt will prove futile. Some economists argue that the loss by exchange, or additional sum required to meet the gold obligations, is only an apparent loss, and imposes no burden on the tax-payers of India. This loss is over five crores of rupees, or \$5,000,000 a year, and increases as the price of silver declines. Others hold the opinion that, while the Government may be embarrassed, some of the tax-payers suffer, and people with fixed incomes become poorer, the depreciation of the currency has been on the whole a great benefit to the people of India, because it has stimulated production and exports. Indian financiers, on the other hand, attribute the increased exports of wheat, cotton, and other commodities to the extension of railroads and the lowering of freight tariffs. The remittances to India during the five years from 1868 to 1873 consisted of £40,000,000 in treasure and £29,500,000 in Government bills. In 1881-'85 the remittances in treasure were £46,500,000, but the Exchequer drafts rose to the amount of £79,500,000. Notwithstanding the increasing loss by exchange, the Indian Government is adding to its gold liabilities in order to construct defensive works and strategic railways on the frontier and extend the system of commercial railways. Formerly the outlay on railroads was limited to £2,500,000 a year, but in 1885-'86 over £6,000,000 were spent, and in 1886-'87 the expenditure was fixed at £5,000,000, to be raised in England on a loan, while £4,000,000 was to be spent by guaranteed companies. The railroads, however beneficial to the commerce of India, have entailed losses on the treasury. In 1885-'86 the net loss was £1,158,880, and for 1886-'87 it was estimated at £1,721,700. The total sum of the deficits of the railroads up to 1885 was £44,000,000. The new lines are expected to be immediately profitable.

On Jan. 26, 1886, Lord Randolph Churchill urged on the treasury the importance of securing an international agreement that would insure the stability of the relative values of gold and silver and revive the free coinage of silver. On February 2 the Government of India sent a dispatch urging the establishment of a fixed ratio between gold and silver. In the reply to these appeals, dated May 31, the proposition to establish a ratio by treaty was treated as impracticable, and the numerous former decis-

ions to the same effect were reviewed. When the Conservatives returned to power, a commission was appointed to inquire anew into the currency question.

Political Convention in Bombay.—A national congress, composed of delegates from the principal political societies of India, met at Bombay in the latter part of December, 1885. There were seventy-two members, representing twenty-nine great districts. The Mohammedans only were not represented. The delegates were mostly lawyers, newspaper editors, and teachers. The resolutions adopted recommended: 1. A royal commission of inquiry into the working of the Indian administration, in which the Indian people should be adequately represented. 2. The abolition of the Indian Council. 3. The expansion of the Supreme Legislative Council and the Provincial Legislative Councils by the admission of a considerable proportion of elected members, the reference to them of financial questions, and the extension to them of the right to interpellate the Executive in regard to all branches of the administration; also the constitution of a standing committee of the British House of Commons to consider their appeals from the decisions of the Executive. 4. That a civil-service examination be held in India simultaneously with the one in England, the successful candidates in India to be sent to England for further study; also that the maximum age for candidates be raised to twenty-three years. 5. That the proposed increase in the military expenditure is unnecessary, and, regard being had to the revenue, excessive. 6. That if the increased military expenditures are not to be met, as they should be, by retrenchments, they ought to be met by the reimposition of the customs duties and the extension of the license-tax to classes previously exempt. 7. That the Congress deprecates the annexation of Upper Burmah, and considers that, if the Government unfortunately decides on annexation, the entire country of Burmah should be separated from India, and constituted a Crown colony.

Religious Riots.—The Mohammedan feasts do not recur at the same days of the year according to the ordinary chronology, because their year consists of only 354 days. In 1866 the Mussulman Mohurrum fell on the same day with the Hindoo feast of the Dasara. This coincidence was the occasion of riots in various parts of the Northwest Provinces and in the Presidency of Bombay. At Etawah the district magistrate directed the two processions to take different routes, but the Mohammedans were bent on forcing a fight, and the Hindoos, who were numerically stronger, and were exasperated at the interruption of their procession, were ready to accept the challenge. A serious collision was prevented by a detachment of troops on their way to Burmah, who quelled the riot, and arrested 150 of the participants. At Delhi different routes were likewise assigned for the two processions, but the

Mohammedans assembled on that set apart for the Hindoos. The latter were persuaded by the magistrate to take another route, while the Mohammedans were dispersed by some English and native troops. The Hindoos, however, cherished feelings of resentment, and some of them took revenge by murdering a Mohammedan boy, and by defiling a mosque with a dead pig.

Proposed Mission to Thibet.—The English in India have long looked toward Thibet as a promising market, and have been inclined to blame the Chinese Government for the policy of seclusion and non-intercourse that has prevented foreigners from penetrating that country. The authorities at Pekin have, since the extension of Russia to the borders of China, shown no dislike to the establishment of communications between India and China. After Prejevalski's attempt to visit Lhassa, when the British applied for permission to send a political and commercial mission to the Dalia Lama under Mr. Macaulay, who had visited Shigatsze, on the border of Thibet, the Pekin Government gave its sanction to the undertaking, sent him letters to the Amban at Lhassa, and promised him every assistance. Magnificent presents for the Lama were sent from London, and preparations were made for an expedition on a grand scale, in which all the sciences were represented. While the members were gathering with their instruments and equipments at Darjeeling, the Thibetans took alarm at the extensive preparations. The Chinese, when they heard of the distrust and excitement created by the mission, advised the British Government to postpone the dispatch of the mission, to which Lord Rosebery and Lord Dufferin agreed. The recall of the expedition was construed by the people on the borders of Thibet as an evidence of timidity. A considerable force of Thibetans invaded the state of Sikkim, which is tributary to the Indian Government, built a number of forts, and took possession of a road that had been constructed by the British authorities from Darjeeling to the Jelapla Pass. The convention with China in relation to Burmah, signed in July, 1886, contains a stipulation by which Great Britain agreed to countermand the Macaulay mission on the ground that the Chinese ministers feared local disturbances, while the Chinese Government promised to encourage trade between India and Thibet. China bound herself not to interfere with the British arrangements for the internal administration of Burmah, and to provide trade facilities between Burmah and Yunnan, while England admitted the Chinese claim to suzerainty, and agreed to continue the decennial tribute mission from Mandalay to Pekin.

INDIANA. State Government.—The following were the State officers during the year: Governor, Isaac P. Gray, Democrat; Lieutenant-Governor, Mahlon D. Munson, who resigned; Secretary of State, William R. Myers; Treasurer, John J. Cooper; Auditor, James H. Rice;

Attorney-General, Francis T. Hord; Superintendent of Public Instruction, John W. Holcombe. Supreme Court: William E. Niblack, George V. Howk, Byron K. Elliott, Allen Zollars, and Joseph A. S. Mitchell, Justices.

Finances.—For the past ten years the tax levy for State purposes has been fixed by law at 12 cents on \$100; at the time such levy was fixed it was only deemed sufficient to meet the usual and ordinary expenses of the State and its institutions. In addition to such expenses, there have been from time to time, as each General Assembly convened, appropriated from the general fund, from which all the expenses of the State government and institutions are paid, large sums for unusual or extraordinary expenses. The State has in part been enabled to pay the large amount of extraordinary appropriations by anticipating the revenue of each ensuing year in the way of advances by the several county treasurers as provided by law. The amount of the advances has increased from year to year, as the pressure upon the treasury for funds has grown, until such advances for the fiscal year ending Oct. 31, 1886, amounted to \$440,804.65. The appropriations from the general fund for extraordinary expenses from Nov. 1, 1883, until Nov. 1, 1886, amount to \$1,208,852.02. During the past two years there has been refunded \$600,000 of the State's temporary loan indebtedness, and the negotiation of an additional loan of \$585,000, authorized by the last General Assembly, has been made. The credit of the State has so improved that these loans were negotiated at a rate of interest, with the premiums received, that will make them average about 8½ per cent., and the refunding of said temporary loan of April 1, 1879, will make an annual saving of \$8,775 in interest. The total amount borrowed for the benefit of the general fund was \$660,000, and, deducting such amount from the amount of the said extraordinary expenses, \$1,208,852.02, it appears that during said years 1883, 1884, 1885, and 1886, the sum of \$548,852.02 has been paid from the revenues of the State, over and above the ordinary expenses.

The net receipts to the general fund from all sources, exclusive of \$257,936.75 advanced by counties and \$679,215.75 received on loans, for the fiscal year ending Oct. 31, 1885, were \$1,424,249.10, while the expenditures from the same fund, exclusive of advances returned to counties during such year, pursuant to appropriations, were \$2,083,085.61. The net receipts to the same fund, exclusive of advances by counties, for the fiscal year ending Oct. 31, 1886, were \$1,421,350.84, while the expenditures from the same fund, exclusive of advances returned by counties, during such year, pursuant to appropriations, were \$1,019,537.78. The expenditures of the last year are not equal to those of the former year, because the revenue of the State were not sufficient to meet the appropriations.

The State is paying annually about one fifth of its entire revenue as interest on its domestic debt, which consists of non-negotiable school bonds of \$3,904,783.22, issued in 1867 and 1868, bearing 6 per cent. interest; a non-negotiable Purdue University bond of \$340,000, issued in 1881, bearing 5 per cent. interest, and a non-negotiable State University bond of \$60,000, bearing 5 per cent. interest.

Educational.—In Indiana University the number of students is steadily increasing, and the work is equal to that done in many more pretentious institutions. The library has been largely increased. The museum is very extensive. The laboratories now afford excellent facilities for work.

The success of the State Normal School has demonstrated its usefulness in developing professional teachers and in promoting the cause of education. During the seventeen years of its existence the average attendance has increased from 47 to 433 students. During the past two years 84 per cent. of the students have come from the homes of farmers and mechanics, and eighty-seven counties of the State have been represented.

The common-school fund has been increasing at the rate of about \$60,000 a year for several years, and amounts to \$9,458,085.71.

There are 9,816 schools, 28 of which are log buildings, 84 stone, 6,531 frame, and 3,173 brick, and the total value, including premises, is nearly \$14,000,000. Of these schools 556 were built in the two years just passed, at a total cost of over \$800,000. The school enumeration for the past two years shows that 728,067 white children were of school age, of whom 496,887 were enrolled at school, and of 16,931 colored children but 9,239 were enrolled at school.

Deaf and Dumb and Blind.—The report of the Institution for the Deaf and Dumb for 1886 shows the value of the real estate is \$459,000; personal property, \$44,890; total, \$503,890.97; value of products of farm and garden, \$3,618.65; earnings of the institution, \$62.81; value of clothing furnished pupils and returned to State treasury for collection, \$963.93; appropriation for maintenance, \$55,000; expended from maintenance fund, \$52,069.98; appropriated for repairs, \$3,000; expended from repair fund, \$1,388.45; special fund, \$726.27; expended from special fund, \$195.35; number of pupils in attendance, 316; per capita cost, \$161.52.

The trustees of the Institution for the Education of the Blind estimate the value of the real estate at \$356,238; the personal property at \$17,760.66; total valuation, \$373,998.66. They report expended for current support, \$23,892; for repairs, \$1,996.67; total expenditures, \$25,888.67. The institution furnishes the pupils tuition, board, and washing only. The whole number of pupils enrolled during the session of 1885 was 126. The total number enrolled during the session of 1886

was 130—60 males and 70 females. The average monthly attendance was 93. The cost per capita for maintenance was \$197.45 for forty weeks. The total amount expended was \$25,888.67, making the cost per capita per annum \$278.37, or \$6.95 a week for each pupil.

Insane.—The trustees of the Insane Hospital, in their report ending Oct. 31, 1886, estimate the value of the real estate at \$1,430,150; value of personal property, \$221,060.95; total, \$1,651,210.95. There was appropriated for the fiscal year ending Oct. 31, 1885, for maintenance, clothing, and repairs, \$280,000. There was appropriated for the fiscal year 1886 for maintenance, clothing, repairs, and improvements, \$354,500. There was expended in the fiscal year ending Oct. 31, 1885, \$319,087.90, and in the fiscal year ending Oct. 31, 1886, \$298,958.60, showing that the entire appropriations of the two years of \$634,500 were expended, except \$16,453.59. The average number of patients during 1885 was 1,422; the average number of patients for 1886 was 1,542. The per capita expense in 1885 was \$173.43; the per capita expense for 1886 was \$160.02. The annual expense of maintaining the institution consumes about one fourth of the entire revenue of the State. The commissioners, in the construction of the three additional hospitals, have constructed each institution in such a manner that increased capacity can be obtained at a very low cost per capita. The medical engineer estimates the aggregate capacity of the three hospitals at 1,100, but more can be accommodated without serious inconvenience. The census of 1880 enumerated 3,530 insane persons in the State; 1,195 were males, and 1,835 were females. The State Hospital for Insane at Indianapolis has accommodations for about 1,500 patients. Inquiry made in September, through the State Board of Health, showed the number of insane persons confined in the jails and poor-houses of the State to be about 1,100, and it is reported that some of them are locked in cells, some wear ball and chain, and others are chained to the floor.

Soldiers' Orphans' Home.—The last General Assembly amended the law for the government of the Soldiers' Orphans' Home and the Institution for Feeble-minded Children, which provided that the Governor should appoint three trustees, one of whom, at least, should be a woman, and the male members of the board should be honorably discharged Union soldiers, and at least one member should be an adherent of one of each of the two political parties casting the largest number of votes at the last general election. The trustees had succeeded, by judicious management of the institution, in paying off a large portion of its indebtedness, and were congratulating themselves upon being able to make repairs and beautify the grounds during the year without increasing the expense of their management, when on July 21, 1886, a fire destroyed the main building, but no lives were

lost. The building was insured for \$25,000, \$20,000 of which has been paid. The grounds consist of fifty-seven acres. The trustees have contracted for the construction of a new building for \$54,000, exclusive of the cost of clearing away the *débris*, tearing down unsafe walls, and repairing the foundation.

Penal and Reformatory Institutions.—The report of the directors for the State Prison South shows that the income of the prison has not been quite sufficient to meet the current expenses. The total disbursements, including officers' salaries and \$4,307.61 expended for repairs for the fiscal year ending Oct. 31, 1886, were \$82,255.45; receipts and earnings, \$79,590.12, showing excess of disbursements over receipts, \$2,665.33. The directors say that the buildings are old and not convenient for manufacturing.

The reports of the State Prison North for the past two fiscal years show the prison to have been self-sustaining. For the fiscal year ending Oct. 31, 1885, the receipts and earnings were \$103,221.67. The total disbursements, including repairs, officers' salaries, and \$26,657.25 expended for improvements, were \$99,662.15. The excess of receipts over all expenditures was \$3,559.52. The monthly average number of prisoners was 702, number of deaths 8, and number of prisoners, Oct. 31, 1885, 703. For the fiscal year ending Oct. 31, 1886, the receipts and earnings were \$111,430.10. The total disbursements, including repairs, addition to library, and officers' salaries, were \$96,712.37. The receipts over expenditures \$14,717.73, showing an increase of receipts over previous year of \$8,208.43, and a decrease in expenditures of \$2,950.15, and an increase in net earnings over previous year of \$11,158.58.

The report of the Reformatory for Women and Girls for 1886 shows that there were in the penal department 54, in the reformatory department 129. Average number for the year, 181. The expenditure for maintenance and repairs was \$30,000. The net earnings of the institution for the year were \$758.81, leaving as the net cost of the institution for the year, \$29,241.19.

The appropriation last year for the maintenance of the Indiana Reform School for boys was \$60,000. The trustees ask an additional appropriation of \$5,000 on account of needed improvements.

Militia.—On this subject the Governor, in his message to the Legislature of 1887, says: "Indiana has never made an appropriation for the support of her militia, and in that respect stands alone among her sister States. In consequence of this, old companies are constantly disbanding and new companies being organized. The result is, that the State has but a very small force of trained and disciplined troops. The regiments in several instances have attempted to raise means for their support by holding encampments and charging an ad-

mission fee, which has rarely proved a financial success, and in several cases has brought financial disaster upon the regiment."

Township Trustees.—In the Governor's message the recent fraudulent transactions of township trustees are mentioned, and on this subject he says:

"The duties of township trustee, township treasurer, and township clerk being combined in one officer, and thereby placing the entire management of township business in his hands, without any check upon the transaction of his business, the accomplishment of fraud is made more easy and less liable to detection. The fact that such fraudulent transactions did not occur in those States that have adhered to the old system of three trustees, a treasurer, and a clerk, will be accepted as a better system than the combining of their duties in a single officer."

Political.—The Democratic State Convention met at Indianapolis on August 11, and nominated the following ticket: For Lieutenant-Governor, John C. Nelson; Secretary of State, Robert W. Miers; Auditor of State, Charles A. Munson; Treasurer of State, Thomas B. Byrnes; Attorney-General, Hugh D. McMullen; Judge of the Supreme Court, John R. Coffroth; Clerk of the Supreme Court, Martin T. Krueger; Superintendent of Public Instruction, Alexander M. Sweeney.

The following are the important portions of the platform:

Resolved, That taxation of the people for other purposes than raising revenue for the expenses of the Government, economically administered, is robbery under the forms of law. We are, therefore, in favor of a reduction of the present unjust tariff to a revenue basis.

Resolved, That the ownership of real estate in this country by persons not citizens of the United States is injurious to true American interests, and may be attended with many evil consequences. We therefore heartily approve the act of the last General Assembly in prohibiting the ownership of real estate in Indiana by aliens, and thereby repealing the act allowing aliens to hold and convey real estate, passed by a Republican Legislature and approved by a Republican Governor. And we specially approve of such legislation by Congress as shall effectively protect the public lands from such aliens' entry and ownership, so that the same may, as far as possible, be reserved for our citizens.

Resolved, That we favor a financial policy in which gold and silver and paper money readily convertible into coin, including the volume of United States notes now provided for by law, shall be the circulating medium. We insist that the surplus in the national treasury shall be promptly applied to the payment of the national public debt, and that taxation shall be reduced, to the end that large accumulations in the treasury, beyond the proper necessities of the public service, shall not occur.

Resolved, That the Democratic party of Indiana is now, as it has always been, opposed in principle to all sumptuary laws and prohibitory legislation, but it is in favor of just and proper measures for regulating the traffic in spirituous and intoxicating liquors under the license system, designed to repress the evils of intemperance, and it favors a reasonable increase of the license-tax, discriminating between malt liquors and wines and distilled spirits, so as to place the highest license on distilled spirits; the proceeds of such tax to be applied to the support of common schools.

Resolved, That we especially commend and approve the action of the last General Assembly in prohibiting the importation of foreigners and aliens under contract to perform labor within the State of Indiana. We demand such further legislation by Congress as may be necessary to prevent such importation of foreign laborers into this country, and we declare ourselves in favor of the strictest enforcement of the acts prohibiting Chinese immigration. Further, that we demand the abrogation of all laws which do not bear equally upon capital and labor; the passage of stringent laws to promote the health and enhance the safety of employés of railways, manufacturing establishments, and mining operations, and to compel the employers to make prompt payment of wages of those in their employ; the enactment of laws prohibiting the hiring out of convict-labor in competition with the honest laborers of the country; prohibiting the employment of children under fourteen years of age in the mines and factories of the State; and, finally, that the importation of foreign laborers under contract be forever prohibited by stringent penal statutes.

The Republican State Convention was held at Indianapolis on September 2, and the following is the ticket nominated: For Lieutenant-Governor, R. S. Robertson; Secretary of State, Charles L. Griffin; Auditor of State, Bruce Carr; Treasurer of State, J. A. Lemcke; Judge of the Supreme Court, Byron K. Elliott; Attorney-General, Louis T. Michener; Clerk of the Supreme Court, William T. Noble; Superintendent of Public Instruction, Harvey M. La Follette.

The essential features of the platform were as follow:

The security of government rests upon an equal, intelligent, and honest ballot, and we renew our declaration against crimes of fraud and violence, wherever practiced and under whatever form, whereby the right of every man to cast one vote, and have that vote counted and returned, is imperiled or abridged. We especially protest against the flagrant crime of the Democratic party of Indiana against free suffrage in the passage of an infamous gerrymander. We demand that, man for man, the votes of members of all parties shall be given equal force and effect.

Freedom of labor is essential to the contentment and prosperity of the people. Workingmen should be protected against the oppressions of corporate combinations and monopolies. We are opposed to the importation of contracted and ill-paid labor from abroad; the unfair competition of convict-labor with free labor; the competition of "assisted" emigrants and the vicious classes of Europe with American workingmen; the employment of young children in factories and mines; and we recommend to the next General Assembly the passage of such laws as will guarantee to workingmen the most favorable conditions for their labor—especially in the proper ventilation and safeguards for life and health in mines and factories—and the sure and prompt payment of wages. We favor the reduction of the legal number of working-hours wherever practicable, and the submission of all matters of controversy between employé and employer, under just regulation, to impartial arbitration. The right of all men to associate for the promotion of their mutual good and protection, without interfering with the rights of others, can not be questioned.

We favor the maintenance of the principle of protection, under which the resources of the State and nation have been, and are being, developed, and whereby the wages of workingmen are from 15 to 30 per cent. higher than under the revenue tariff in force before the Republican party came into power. Favoring the reduction and readjustment of the tariff from time to time as circumstances may require, upon the

basis of affording protection to the products and results of American skill and industry, in our opinion the duties should be reduced as low as will be allowed by a wise observance of the necessity to protect that portion of our manufacturers and labor whose prosperity is essential to our national safety and independence. We at the same time condemn the declaration of the Democratic party of Indiana in favor of practical free trade, as a menace to the prosperity of the State and to the welfare and advancement of workingmen.

The wisdom and honesty of the Republican party secured sound money to the people. Gold and silver should be maintained in friendly relation in the coin circulation of the country, and all the circulating medium—coin and paper alike—should be kept of equal and permanent value. The surplus in the treasury should be steadily applied to the reduction of the national debt.

We favor thorough and honest enforcement of the civil-service law, and the extension of its principles to the State administration wherever it can be made practicable.

The Republican party carried into effect the homestead policy, under which the Western States and Territories have been made populous and prosperous. We favor the reservation of public lands for small holdings by actual settlers, and are opposed to the acquisition of large tracts of the public domain by corporations and non-resident aliens. American lands should be preserved for American settlers.

The watering of corporate stock should be prevented by law. We favor the creation of a Bureau of Labor and Statistics.

The constitutional provision that all taxation shall be equal and uniform, should be made effective by such revision of the assessment and taxation laws as will remedy the injustice whereby certain localities have been made to bear more than their due share of the public burdens.

We renew the pledge of our devotion to the free, unsectarian school system, and favor measures tending to increase its practical value to the people. We are opposed to any movement, however insidious, whether local or State, whereby a sacred fund may be diverted from its legitimate use, or the administration of the schools made less impartial or efficient.

The attempted domination by the Liquor League of political parties and legislation is a menace to free institutions which must be met and defeated. The traffic in intoxicating liquors has always been under legislative restraint; and, believing that the evils resulting therefrom should be rigidly repressed, we favor such laws as will permit the people in their several localities to invoke such measures of restriction as they may deem wise, and to compel the traffic to compensate for the burdens it imposes on society and relieve the oppressions of local taxation.

The Prohibition candidates were: Lieutenant-Governor, J. M. Gale; Secretary of State, J. S. Hughes; Auditor, Sylvester Johnson; Treasurer, A. G. Tubbs; Attorney-General, William M. Land; Superintendent of Public Instruction, Cyrus Hodgin; Supreme Judge, R. S. Dwiggins; Clerk of Supreme Court, L. D. Ratliff. The following was the Greenback ticket: Lieutenant-Governor, E. S. Pope; Secretary of State, J. B. Milroy; Auditor, Pressly Gregg; Treasurer, Benjamin Perkins; Attorney-General, J. S. Bender; Superintendent of Public Instruction, George Bass; Supreme Judge, J. L. Miller; Clerk of Supreme Court, S. D. Douglass.

On November 2 the Republican ticket was elected. The vote for Lieutenant-Governor was: Republican, 232,916; Democratic, 229,-

593; Prohibition, 8,829; Greenback, 3,016; Republican plurality, 3,323. The plurality for the other officers was about the same, except that for Superintendent of Public Instruction, which was about 9,000. The Republicans elected Congressmen in the First, Sixth, Eighth, Ninth, Tenth, Eleventh, and Twelfth Districts, seven, and the Democrats in the other six. The Legislature elected consisted of 31 Democrats and 19 Republicans in the Senate, and 55 Republicans and 45 Democrats in the House. Several of each party were Knights of Labor. The Democrats after the election contested the lieutenant-governorship on the ground that there could be no legal election to fill a vacancy during a term, but only at the regular quadriennial periods. The question had not been set at rest at the close of the year.

INLAYING. A paper on this subject might properly include the arts of inlaying as practiced from time immemorial by skilled workers in wood, metal, and stone the world over; but, as these have been fully described in the standard technical works, they are omitted here. The present article treats of inlaying as applied to engravings, drawings, manuscripts, and the like, when they are to be preserved in those superb sets of volumes that are among the choicest treasures of modern collections. Most of the larger libraries of the present time contain inlaid editions of more or less importance, none of which can be duplicated, and some of which contain so much that is rare that, when offered for sale, they command fabulous prices. The process of collecting the materials for such books often extends over the better part of a lifetime, and involves a large initial outlay of time and money. The work of inlaying or mounting the engravings calls for a high degree of mechanical skill, to the end that the pages of the volume when bound shall lie as flat as if each were a single sheet of paper. An inlaid book, in short, is an artistically constructed scrap-book; but whereas the leaves of the ordinary scrap-book are crumpled and unsightly at the edges, those that are skillfully inlaid are like the work of the best bookbinders. Usually the collector procures an unbound copy of the work he intends to illustrate, printed, with wide margins, on heavy paper. He procures also a supply of paper of like size and tint, upon which to mount his engravings.

Professional inlayers are few, and many collectors prefer to do the work themselves, acquiring often a high degree of technical skill.

The inlayer's tools include an assortment of knives, a lithographer's stone, some sheets of press-board, and an ordinary hand copying-press large enough to receive the sheets of the intended volume.

No two inlayers agree about the best shape of knife-blade, and only experience can determine what is best for each individual. Temper and keenness of edge are, of course, essential. Several knives are necessary—one, namely, to

make a clean, smooth cut through the paper, and the others to bevel its edges. Dealers in shoemakers' supplies keep in stock a very large variety of knives of different shapes, and usually of excellent steel. An inlayer can often find just what he wants in such an assortment; but fastidious workmen frequently have blades specially shaped and tempered to suit their individual methods.

The lithographer's stone should be nearly or quite as large as the sheets of paper to be used. It is well to have it set in a wooden frame, making the total size somewhat larger than the paper.

The press-board should be of the dark, mahogany-colored variety generally used by bookbinders to lay between the different sets of sheets when piled up under their powerful hydraulic presses. It is made of wood-fiber, and is exceedingly hard, tough, and smooth. For the inlayer it serves a double purpose: one sheet of it he keeps for a cutting-board, and the rest he lays between his inlaid sheets while they are drying in the copying-press.

With this equipment, a pot of rice-flour paste, and a small, stiff brush—an artist's bristle-brush is best—the inlayer is ready for work.

The first operation is to lay the engraving on the cutting-board, and, with a sharp knife, cut it out of the sheet upon which it is printed, leaving a margin of about one eighth of an inch around the print proper. Next lay a sheet of mounting-paper upon the cutting-board, and upon it place the engraving exactly where it intended to stay. Of course, every precaution must be taken to insure accurate placing. To identify the top of the sheet, press the point of a needle through one of its upper corners, and to register the print make two needle-holes, say one quarter of an inch apart, passing at once through it and through the mounting-sheet. These two holes serve to identify the print and its particular sheet, should a number of engravings be in hand at once. Four more needle-holes through the mounting-sheet, one at each corner of the print, serve to fix the position of the "window" that is to be cut in the mounting-sheet. The print is now laid aside, and the window cut out on lines about one eighth of an inch within the four needle-holes; this will make an opening in the sheet a little smaller than the print.

The next operation calls for the nicest manual skill. The paper frame or mat is laid on the lithographic stone and its inner edges are beveled with a sharp blade, so that the paper is as thin as possible at the extreme inner edge. Bevel the edges of the print in the same way. Skill and certainty in beveling can only be acquired by the greatest nicety of manipulation, and it is only given to a few, even among professionals, to attain something like uniform perfection.

Pasting comes next. Lay the print on a

piece of clean waste-paper (which must never be used a second time, for fear of accidents) and upon it lay the "window" cut from the mounting-sheet. The beveled edge alone will remain in sight, and, holding the "window" firmly in place, the rice-paste is rubbed upon the bevel until it is uniformly covered and the paste rubbed into its texture. The print is now taken up carefully, laid upon its mat, pressed firmly between flat surfaces, and allowed to dry under the heaviest available pressure. It will be seen that the reversed bevels of print and mat are thus glued securely together without increasing the thickness of the sheet.

When it is desired to inlay two prints that are on opposite sides of the same sheet of paper, it is necessary to split the paper. This is easily done by taking two pieces of stout cotton or linen sheeting at least as large as the largest of the prints. Cover each of them evenly with paste, lay the paper to be split on one of them, and spread the other piece of cloth over both. Smooth out all inequalities and lumps, and let the paste become perfectly dry. Then pull the two pieces of cloth carefully apart, and half of the paper will come away with each piece. Soaking in lukewarm water will dissolve the paste, and the prints can be separately inlaid. In this case the prints will not require beveling, unless the paper is so thick as to render it desirable. The soaking in paste and water will not affect old-fashioned printer's ink, but some modern work is done with ink that will not stand water. Common paper may be split by a skillful worker, using simply a delicate knife and the fingers, but such work requires a great deal of practice, and is at best a slow operation. When the engraving is backed by printed matter that may show through, the paper may be split as described, or it may be backed without splitting by a piece of black paper which will usually render invisible the reversed letters; or, the paper may be thoroughly wetted with water and laid face down on the stone, when the objectionable printed matter may easily be rubbed off with the fingers, taking care to rub across the grain of the paper, and being particularly careful about fraying the edges.

"Laying-on" is included in the same category with inlaying, as it is used for the same purpose. It is simply pasting the paper on the mounting-sheet without cutting a "window," or beveling, but this is not such an easy operation as it would seem to a novice. If ordinary calendered paper is used, the additional thickness will tell where several sheets come together. Therefore, a soft paper must be used into which the imposed sheet will sink under pressure. Again, both sheets will wrinkle more or less in drying, even when carefully dampened. This is due partly to the impossibility of dampening them equally; therefore, when they have had a first drying under the press, they are both wetted a second time

smoothed between sheets of clean blotting-paper, and again placed under pressure, when they should dry perfectly flat and without perceptible increase of thickness.

A third method, which may under some circumstances be advantageously followed, is to lay the print on the mounting-sheet before trimming it, and, carefully adjusting it in place, cut through both thicknesses of paper, moving the knife-blade in a vertical plane. This at once trims the print and cuts a "window" into which it will exactly fit. The mounting-sheet should be a little thicker than the print-paper, and both are to be pasted, with all precautions against wrinkling, upon a third sheet which completes the folio, and if skilfully done gives a most satisfactory result, as nothing shows on the reverse side. Coarse prints may be cut from the daily journals, and treated in any of the three methods described, in such a way that when finished they will look like etchings on India paper.

The best material for the inlayer's purposes is a not very hard, not very smooth, calendered paper. German drawing - paper is good; Whatman's, being hand-made, is not so satisfactory; ribbon paper, such as is cut into strips, and wound up with costly ribbons, is excellent for "laying on." Of course, no beginner should make a first attempt upon anything valuable; the manual dexterity essential to true and nice beveling comes only by practice.

Inlaying, apparently after the methods described has been practiced by the Chinese time out of mind, and it was largely used by monkish missal-writers of the middle ages. It is an art well adapted for amateur work, and is not without its inducements as professional calling. It is believed that there are in this country only three professional inlayers, and even in Europe the market is not over-supplied with really good workmen.

INSURANCE LEGISLATION. The record of the Legislature and the Governor of New York relative to insurance matters in 1886 was of much more than the usual interest. Eleven very important laws were enacted. The first provided that Canadian companies may deposit Canadian securities with the Insurance Superintendent for business done in the State. The second amends the laws of 1875 so as to allow any of the New York State companies doing business in foreign countries to invest in foreign securities the funds that are required abroad. The third facilitates the closing up of insolvent life-insurance and annuity companies. It provides that upon the expiration of two years after the declaration of a final dividend by a receiver heretofore appointed of an insolvent life-insurance and annuity company, a Justice of the Supreme Court, at a special term thereof held in and for the county in which the office of such receiver is situated, may, upon petition of the Attorney-General, or the receiver or any of his bondsmen, make an order authorizing such applicant to cause to be

published and mailed a notice to the remaining creditors of such insolvent company or receiver to present their claims for payment within three months from the date of said notice, or that the same be thereafter forever barred, a copy of which notice shall be published in the city of Albany in the newspaper designated for the publication of certain public notices pursuant to chapter 262, laws of 1885, and in a newspaper published in said county once in each week for five successive weeks, and a copy of which notice shall be mailed, postage paid, on the day of the date thereof, to each of said remaining creditors, to their last known address. Upon due proof of the publication and mailing of such notices as aforesaid, and the payment of all claims so presented, a Justice of the Supreme Court, at a special term thereof held in and for said county, upon motion of the Attorney-General, or the receiver or any of his bondsmen, may grant an order discharging such receiver and his bondsmen from further liability. The fourth provides for a uniform contract or policy of fire insurance to be made and issued in this State by all insurance companies taking risks on property in this State. This law makes it possible to create a standard policy, which shall do justice to all of the many-sided interests touched by insurance, as the New York Board is intrusted with its original preparation and the Legislature can revise it if it should at any time need revision. The fifth allows any town insurance company, acting under the laws of 1857 and 1881, to choose not fewer than five nor more than nine directors to be elected annually, and to hold office not to exceed three years. The sixth provides for a codification of several laws; it amends the law of 1870, chapter 287, so as to conform with chapter 362 of the laws of 1880; it was introduced at the request of the New York State Central Organization of Co-operative Fire Insurance, and refers more especially to the making of reports at a particular time and to the filing of reports with the Secretary of State. The seventh provides that the capital stock of any corporation organized since May 15, 1878, as a limited liability company, under an act entitled "An act to provide for the organization and regulation of certain business corporations," passed June 21, 1875, may be paid in six months from the passage of this act, or may be reduced by proceedings authorized by law to be taken within such time. Nothing in this act contained shall be construed in anywise to relieve any such corporation or the directors or stockholders thereof from liability to creditors for debts contracted before the passage of this act by reason of any failure to pay in its capital or any part thereof within the time prescribed for the making of such payments by the said act, or to make and file any certificates of such payment. The eighth was the cause of considerable discussion. It amends the laws relating to the payment of premiums to the fire department of cities and

villages by companies not organized under the laws of this State. The significant amendment allows any company licensed to do business in this State to transact business in any place where it has no agent, if it will give a bond to the insurance department that it will pay the two-per-cent. premium required by law. It is also provided that for the purposes of this act the limits of any incorporated village in this State shall be determined by the town board of the town in which such village is situated. The ninth provides for the incorporation of credit guarantee and indemnity companies for all parts of the State except New York and Brooklyn. The Comptroller was struck out of the bill, and the Superintendent of Insurance was added, as the officer with whom the business should be done, and stringent provisions were enacted in regard to sending reports to him. It was further provided that at least 25 per cent. of the capital stock of such company shall be paid in before it proceeds to business; and that no such company shall begin business before it has deposited at least \$100,000 with the Superintendent of Insurance. The tenth amends the law of 1880 relative to the examinations and reports of fire and inland companies, so that where a note is taken for a premium the company may deduct the expense of obtaining the risk and issuing the policy. The eleventh provides for a tax of one half of one per cent. on the gross premiums received by all fire and marine companies doing business in this State—whether organized in this State or not. The payment is to be made annually by the 18th of August to the State Treasurer, sworn returns in regard to the business being sent to the Comptroller. The tax in each case shall be paid up to the 30th day of June preceding.

Aside from these laws, a new law, developed from the investigation of the Broadway railroad, provides for the appointment of receivers for corporations whose charters have been annulled. A law of very great general interest was passed providing that every receiver shall be allowed to receive, as compensation for his services as such receiver, 5 per cent. for the first \$100,000 received and paid out, and 2½ per cent. on all sums received and paid out in excess of the said \$100,000; but no receiver shall be allowed or shall receive, from such percentage or otherwise, for his said services for any one year, any greater sum or compensation than \$12,000, nor for any period less than one year, more than at the rate of \$12,000 a year, provided that where more than one receiver shall be appointed, the compensation herein provided shall be divided between such receivers. This is an amendment to the receivership act of 1878.

Aside from the State of New York, the most important insurance laws of 1886 were passed by the State of Connecticut. The fees of the Insurance Commissioner were fixed in that State. Another law provides that no insurance company shall cancel a fire policy without giv-

ing the party insured at least five days' notice and a *pro-rata* for the unexpired term. A third law allows life-insurance companies to improve any real estate whether in Connecticut or in any other State. A fourth law provides that any fire, or fire and marine company of another State with \$150,000 in cash assets, may transact business in the State, provided that similar companies of Connecticut are admitted to transact business in such other State. A fifth law concerns licenses and certificates of insurance agents. "Valued policy bills" were introduced in the legislatures of fifteen States and Territories; but they did not become laws except in New Hampshire and Idaho, from both of which the insurance companies promptly withdrew their agents. It was expected that this particular form of legislation, which seeks to overthrow the idea that an insurance policy is a contract of indemnity only, will be pushed very actively during 1887.

INVENTIONS. See PATENTS.

IOWA. State Government.—The following were the State officers during the year: Governor, William Larrabee, Republican; Lieutenant-Governor, John A. T. Hull; Secretary of State, Frank D. Jackson; Treasurer, V. P. Twombly; Attorney-General, A. J. Baker; Superintendent of Public Instruction, John W. Akers; Labor Commissioner, E. R. Hutchins; Railroad Commissioners, Peter A. Dey, L. S. Coffin, and James W. McDill; Mine Inspectors, Joshua A. Smith, Thomas Binks, and James E. Stout; Fish Commissioner, E. D. Carleton. Supreme Court: Chief Justice, Joseph R. Reed; Associate Justices, James H. Rothrock, Austin Adams, Joseph M. Beck, and William H. Seavers. J. W. Cattell at the beginning of the year held the office of Auditor, having been appointed thereto in 1885 by Gov. Sherman, who had removed Auditor John L. Brown on charges. Gov. Larrabee, soon after his inauguration, restored Mr. Brown. He, having been impeached, was succeeded by Charles Beardsley. The articles were adopted by the House on April 18, but the trial before the Senate was not concluded until July 14, when Mr. Brown was acquitted. He was thereupon restored to office, and continued in possession the remainder of the year.

Legislative Session.—The Legislature met on January 11, and adjourned on April 13. Among the laws passed were the following:

To provide for the teaching and study of physiology and hygiene with special reference to the effects of alcoholic drinks, stimulants, and narcotics upon the human system, in the public schools and educational institutions of the State.

To authorize the creation and to provide for the operation of tribunals of voluntary arbitration to adjust industrial disputes between employers and employed.

To enable cities to aid in the construction of highway bridges over navigable boundary rivers of the State of Iowa.

To provide for the levy of one-half-mill tax for the years 1886 and 1887, to provide a home for Iowa soldiers and sailors, and for making repairs and improvements on State institutions and for paying outstanding warrants.

To repeal section 3909 of the Code and to enact a substitute therefor, defining and punishing embezzlement.

To establish a uniform inch or gauge of cream.

To prevent deception in the manufacture and sale of imitation butter and cheese.

Making an appropriation for erecting an additional wing to the Iowa Hospital for the Insane at Mount Pleasant for female patients and for its support.

To establish and maintain a Soldiers' Home in the State of Iowa, and making an appropriation for the purchase of land and the construction or purchase of buildings.

Establishing the Supreme Court at the seat of government and providing officers thereof.

To repeal chapter 162 of the acts of the Twentieth General Assembly, and to enact a substitute therefor in relation to soldiers' monuments and memorial halls, and providing for levying a tax therefor.

To authorize cities and towns to erect and maintain fish-dams across the outlets of meandered lakes, and to provide punishment for the injury or destruction of the same.

To regulate the organization and operation of mutual benefit associations.

Amendatory of chapter 143 of the acts of the Twentieth General Assembly relating to intoxicating liquors, and providing for the more effectual suppression of the illegal sale and transportation of intoxicating liquors and abatement of nuisances.

Requiring banking corporations other than savings-banks to incorporate the word "State" in their corporate name, and to prohibit associations, partnerships, or individuals engaged in banking business, buying or selling exchanges, receiving deposits, discounting notes, etc., from adopting and using the word "State" in connection with such associations, partnership, or individual names.

Requiring foreign corporations to file their articles of incorporation with the Secretary of State, and imposing certain conditions upon such corporations transacting business in this State.

To prohibit the traffic in hogs infected with swine-plague or hog-cholera, and to prevent the spread of the same.

Authorizing the consolidation of the coupon fund in the State treasury with the general revenue fund.

To amend section 797 of the Code of Iowa, and to exempt from taxation certain homesteads.

To authorize administrators, executors, and guardians appointed in other States or countries to release judgments, mortgages, and deeds of trust.

To regulate the practice of medicine and surgery in the State of Iowa.

Regulating the sale and transfer of grain in elevators and other places of storage.

To abolish the Circuit Court and to enlarge the powers and jurisdiction of the District Court, and to provide for additional judges and to reorganize the judicial districts of the State.

To regulate the manner of holding courts in the several judicial districts of the State, and to amend section 231 of the Code as amended by an act of the Twenty-first General Assembly relating to trial jurors.

To repeal sections 1, 2, 3, 4, 5, and 6 of chapter 21, acts of the Twentieth General Assembly, and enact substitute therefor providing for mine-inspectors, their manner of appointment, compensation, and defining their duties and term of office.

In relation to the sale of intoxicating liquors.

To provide for the levy of attachment or execution on personal property covered by mortgage.

To prescribe certain powers and duties of the Governor and Senate sitting as a court in cases of impeachment.

Fixing the number of Senators in the General Assembly, apportioning them among the several counties,

according to the number of inhabitants in each, and dividing the State into senatorial districts.

To reorganize the congressional districts of the State.

To facilitate the giving of bonds required by law, and authorizing the acceptance of fidelity surety companies as sureties on any such bonds, and prescribing the rights and liabilities of such companies as such sureties.

To amend chapter 185 of the laws of the Twentieth General Assembly in relation to the inspection of illuminating oils.

To locate the State fish-hatchery house at Spirit Lake, and to sell the property heretofore used for a fish-hatchery in Jones County, and to abolish the office of Assistant Fish Commissioner.

The following are the counties comprised in the several congressional districts:

1. Washington, Louisa, Jefferson, Henry, Des Moines, Lee, and Van Buren.

2. Muscatine, Scott, Clinton, Jackson, Johnson, and Iowa.

3. Dubuque, Delaware, Buchanan, Black Hawk, Bremer, Butler, Franklin, Hardin, and Wright.

4. Clay, Allamakee, Fayette, Winneshiek, Howard, Chickasaw, Floyd, Mitchell, Worth, and Cerro Gordo.

5. Jones, Linn, Benton, Tama, Marshall, Grundy, and Cedar.

6. Davis, Wapello, Keokuk, Mahaska, Poweshiek, Monroe, and Jasper.

7. Story, Dallas, Polk, Madison, Warren, and Marion.

8. Adams, Union, Clarke, Lucas, Appanoose, Wayne, Decatur, Ringgold, Taylor, Page, and Fremont.

9. Harrison, Shelby, Audubon, Guthrie, Pottawattamie, Cass, Adair, Mills, and Montgomery.

10. Crawford, Carroll, Greene, Boone, Calhoun, Webster, Hamilton, Pocahontas, Humboldt, Palo Alto, Kossuth, Hancock, Emmet, and Winnebago.

11. Lyon, Osceola, Dickinson, Sioux, O'Brien, Clay, Plymouth, Cherokee, Buena Vista, Woodbury, Ida, Sac, and Monona.

Political.—The Democratic State Convention met at Des Moines on June 30, and adjourned on July 1. The following are the chief points of the platform adopted:

That we insist that the surplus revenue accumulated in the Treasury of the United States not needed to defray the current expenses of the Government and meet the appropriations made by Congress, be applied in payment of the public debt.

That the public lands are a trust held by the Government as the heritage of its people; and that they should under no circumstances be alienated from its citizens nor made the subject of barter and sale for speculative purposes, but should be held for actual settlers who propose by their own labor to build up in our country a home. And we demand the immediate and unconditional resumption of all unearned railroad land-grants.

That recognizing in industry and morality the standard of individual and national greatness and the foundation of purity and happiness in the home, would secure to the laborer a participation in the fruits of his toil and a share to the family and the home in the refining influences of advancing civilization. We therefore call upon all who may have at heart the greatest good to the greatest number to join with us in securing by unprejudiced legislation a just recognition of the rights of the toiler and in protecting the individual laborers by proper, equitable, and honorable safeguards against the present and threatened encroachments of monopoly corporations.

We sternly denounce the betrayal of the interests of the miners of Iowa by the last Republican Legislature, and its shameless violation of the pledges given

by its platform and party leaders as shown by the defeat of the measures of relief demanded by the miners of the State.

That we favor the repeal of the present prohibitory liquor law of this State, and the enactment in lieu thereof of a law securing to each county and municipal corporation the right to determine for itself the prohibition or licensing of the sale of intoxicating liquors as a beverage; providing by proper legislation for the enforcement of prohibition where prohibition is adopted, and where license is adopted for a license fee of not less than \$500 with such legislative restrictions as will promote sobriety and suppress free whisky.

The Greenback State Convention assembled at the same place on July 1. The following are points from the platform:

A false, partial, and cruel financial system now forces the millions into usurious debts to moneyed men and banking-houses, and then allows the lenders to contract the currency, crowd down all property values, foreclose mortgages, close factories, and drive products into the highways. This arbitrary financial despotism has already produced incipient revolution, while strikes and universal organization for the protection of labor indicate great unrest. The process of inflating the value of the dollar and all bonds, mortgages, and other money obligations, while crowding down the value of farm-crops, labor, and property generally has been greatly facilitated by cornering about one third of the money of the country in the United States Treasury.

We denounce the present money system, which enables a few men to borrow the credit of the people at one per cent. and reloan the same back to them at enormous rates of interest, and demand the issuance of lawful money, which, instead of being loaned to banks on bonded security, shall be loaned to the people under an equitable and safe system on ample security, as the school fund of Iowa is now loaned, and at a rate not to exceed 3 per cent.

We demand a graduated income-tax. We are in favor of the use of all practical means for the suppression of intemperance.

We demand such laws as will insure speedy payment of the wages to the employés in mines, factories, and workshops in the lawful money of the country, and the complete abolition of the truck store system. A free government can exist only with free homes, and we condemn that policy that permits vast tracts of land to be owned by any individual or corporation. We denounce the policy of permitting foreigners, who owe no allegiance to the flag of our country, from acquiring title to real estate in this country, and we demand that all forfeited or unearned lands, granted to railroad or other corporations, be reclaimed and opened for homesteads for the people.

The great corporate monopolies, which control money, transportation, and public intelligence, should be brought to a sense of justice by the adoption of laws which will prohibit extortionate rates for the use of money and prevent over-charges by railroads for transportation and of telegraph lines for intelligence, securing legal rights and privileges to all.

The two conventions agreed upon a fusion ticket, giving the Greenbackers the State Treasurer and Clerk of the Supreme Court, the Democrats taking the rest. The following were the nominees: Secretary of State, Cato Sells; Treasurer, Daniel Campbell; Auditor, Paul Guelich; Attorney-General, C. H. Mackey; Supreme Court Clerk, William Theophilus; Supreme Court Reporter, F. P. Bradley.

The Republican State Convention met at Des Moines on August 25, and nominated the

following ticket: For Secretary of State, Frank D. Jackson; Auditor, J. A. Lyons; Treasurer, Y. P. Twombly; Attorney-General, A. J. Baker; Supreme Court Clerk, G. B. Pray; Supreme Court Reporter, E. C. Ebersole. The following are extracts from the platform:

We denounce the abuse of the elective privilege which in the southern section of our country, and in many cities of the North, continues to make elections a mockery and delusion, and the fraud and suppression which continually defeat the popular will and prevent fair and proper representation. And we insist upon the right of every American citizen to freely cast his ballot and to have the same honestly counted and truly declared.

The Republican party, standing for that principle of equal citizenship to which is due the superiority of this over all other nations, and recognizing the necessity of protecting labor against the aggression of capital, heartily indorses every legitimate effort of organized labor to secure equal and exact justice between labor and capital.

We demand protection for American labor against competition with pauper labor abroad, and against the product of convict and imported contract labor at home.

That the laws for the suppression of intemperance were enacted as a part of the general legislation of our State, in obedience to the will of the majority. That we behold with alarm the continued efforts of the Democratic party of Iowa to encourage resistance to these laws, and to inflame the passions of the lawless classes in regard to them, thereby menacing social order and leading to the perpetration of murder and other crimes and outrages. While fully recognizing the right of the people to agitate for the repeal of these or any other laws, which time may prove ineffectual for the beneficent purposes of their enactment, we insist that these and all other laws of this State shall be faithfully and fearlessly enforced.

On November 2 the Republican ticket was elected, the majority for Secretary of State being 14,712. Eight Republican and three Democratic or Greenback Congressmen were elected.

Prohibition.—The State Temperance Alliance met in Des Moines on the 20th of January, and on the following day a State Prohibition Convention was held at the same place. The convention adopted resolutions of mutual encouragement, embodying requests for legislative action. The report of the Secretary of the Alliance contains, with other matter, the following statistics:

"Thirty county auditors' reports give the number of permits granted, none. Forty-seven auditors' reports give the number of permits granted, 220. Average number granted, 5. Five greatest number of permits granted respectively, 20, 10, 14, 13, and 9. Statistics from seventy clerks of courts show injunction cases under the prohibitory law, 255; result of these cases, pending, 37; temporary injunctions granted, 76; dismissed, 43; transferred to United States court, 93; number of cases appealed from the justices' court to the District Court, 547; number now pending, 110; acquitted, 21; found guilty, 8; pleaded guilty, 86; dismissed, 12; convicted, 29; failures on account of disagreement of jury, 11;

fined, 117. The fines ranged from \$25 to \$900 (the latter was appealed to the Supreme Court), and imprisonments from 22½ days to 120 days."

Colleges.—The following statistics, gathered from the various catalogues for 1885, exhibit the attendance for Iowa colleges during that year: Cornell College, 494 students, 20 teachers; Iowa College, 323 and 18; Drake University, 282 and 13; Upper Iowa University, 279 and 8; Simpson College, 249 and 11; Western College, 133 and 11; Tabor College, 233 and 16; Wesleyan University, 226 and 10; Coe College, 202 and 18; Lenox College, 173 and 11; Parsons College, 166 and 14; Oskaloosa College, 158 and 11; Penn College, 155 and 8.

Insane.—Relative to providing additional accommodations for the insane, the following statement was made: Number of insane in the State by census of 1885 (not in hospital), 921; in Mount Pleasant Hospital, 460; in Independence Hospital, 622; total, in State, 2,003. March, 1886, number in Mount Pleasant, 625; number in Independence, 716; number out of asylums, 1,341; in private asylums, 188; total in State, 2,865.

Corporation Law.—Chapter 76 of the Laws of the Twenty-first General Assembly requires all corporations doing business in Iowa to incorporate under the laws of the State. Several cases of railroad employés, charged with the violation of this act, were brought before the Supreme Court of the State, which, on December 15, rendered a decision, of which the following is the material portion:

It is insisted by counsel for the petitioners that said chapter 76 is unconstitutional and void, because 1. It is repugnant to section 10, Article I of the Constitution of the United States, and section 21, Article I of the Constitution of Iowa, which provides that no law shall be passed impairing the obligation of contracts." 2. Said "statute is contrary to section 8 of Article 1 of the United States Constitution, which provides that Congress shall have power to regulate commerce with foreign nations and among the several States." 3. Said "statute is repugnant to the fourteenth amendment to the Constitution of the United States, and therefore void." 4. Said "statute is void as an attempt to interfere with the jurisdiction of the Federal courts, as established by the Constitution of the United States and the acts of Congress." These several propositions have been exhaustively argued by counsel, and in relation thereto we desire to say that their solution presents grave difficulties as to all the propositions but one: this court is not the final arbiter; and therefore believing, as some of us do, that it is doubtful what construction of the United States Constitution and the acts of Congress should be adopted, under the agreed statement of facts we feel constrained to hold that the statute above mentioned is not in conflict with the Constitution of the United States or acts of Congress passed in pursuance thereof, to the end that the questions presented may be determined by the Supreme Court of the United States.

Capitol.—The Capitol has been completed, and on June 30 the Capitol Commission was dissolved. The work had been going on for fifteen years, the first commission having been created in 1870. The following is the financial statement:

Total appropriation	\$2,876,300 00
Expenditures:	
On new Capitol	\$2,624,199 48
Repairs on first foundation	52,349 76
Lot and sewer	10,000 00
Boiler-house	25,844 19
Furniture	123,181 77
For Twentieth General Assembly	208 55
Adjutant-General's office	3,021 01
Capitol-grounds	1,883 70
Street improvements	24,994 59
Governor's settlement account	55 00
	2,871,632 05
Cash unexpended and turned over to Gov. Larabee	1,612 54
Paving and sidewalk appropriation in State treasury underdrwan	8,005 41
Cost of new Capitol to June 30, 1886:	
General construction	\$2,624,199 48
Repairs on foundation	52,343 76
	2,676,543 24
From which the following credits should be deducted:	
Cash turned over to Gov. Larabee	\$1,612 54
Tools and machinery sent to Alamosa Penitentiary	10,105 87
Tools and machinery loaned to State Agricultural College	1,829 81
Tools, machinery, and material on hand	5,480 14
	18,527 86
Actual cost	\$2,658,015 83

IRON AND STEEL INDUSTRY IN 1886. The United States produced more pig-iron, more Bessemer steel, and more Bessemer steel rails in 1886 than in any previous year in our history. Exact and complete statistics carefully collected by the American Iron and Steel Association from the manufacturers throughout the country cover for the purposes of present publication only the first six months of 1886. But it is known that in all branches of iron and steel industries there was a greater activity in the last half than in the first half of the year, and that, generally speaking, the entire year was the most productive ever known in the United States. The latest statistical information brought down to July 1, 1886, may be condensed as follows: The total production of pig-iron for the first six months of the year amounted to 2,954,200 tons of 2,000 pounds, or 2,637,687 tons of 2,240 pounds. This is more than the production of any entire year prior to 1879. It is an increase of 717,316 gross tons (of 2,240 pounds) over the production of the first half of 1885, and of 513,538 gross tons more than in the last half of that year. The greatest absolute gain in production in the specified period was in Pennsylvania, notably in the Lehigh valley district, which previously had been second to the Allegheny County district, but now exceeded it by making 320,568 net (2,000 pounds) tons against 301,014 tons in Allegheny. It may be said that each of these Pennsylvania districts makes more pig-iron than any entire State in the Union, excepting Ohio. In other parts of the country the greatest relative gain was made by Ohio and Alabama, both of which materially increased their production. New York, New Jersey, West Virginia, Tennessee, Illinois, Michigan, and Wisconsin also show an increase. The less important iron-producing

States, Maine, Massachusetts, Maryland, Indiana, and California, also indicate an increase, while Virginia, Kentucky, Missouri, and Georgia show a decrease. The total production of pig-iron in all the States in the first half of the year was 2,954,200 net tons. Of this total, 1,745,561 tons were made with bituminous coal and coke; 1,011,757 tons with anthracite coal and mixed anthracite and coke; and 196,891 tons with charcoal. The remarkable increase of production in the first half of 1886 over the last half of 1885 was wholly in pig-iron made with mineral fuel, while that made with charcoal shows a decrease. The production of pig-iron with anthracite coal alone, unmixed with coke, is rapidly declining, as is shown by the six months' production of last year, when 809,200 net tons were made with mixed anthracite and coke, and only 202,556 tons with anthracite alone. In the same period the production of charcoal pig-iron in all the States was 196,891 tons, Michigan making 89,105 tons; Alabama, 37,789 tons, and Connecticut, 10,245 tons, while Pennsylvania, in the immense total product of 1,541,793 tons, or more than one half of the entire production of all the States combined, made but 7,407 tons of charcoal pig-iron. The principal production of mixed anthracite and coke pig-iron in the first half of 1886 was as follows: Pennsylvania, 820,818 tons; New York, 111,826; and New Jersey, 79,113. Of bituminous coal and coke pig-iron Pennsylvania made 713,568 tons; Ohio, 427,149; Illinois, 195,630; Alabama, 108,491; Tennessee, 83,684; Virginia, 68,672, and West Virginia, 49,952 tons, with a product of from 7,000 to 23,000 tons in the different States of Indiana, Kentucky, Maryland, Missouri, and Wisconsin. The total production of all kinds of pig-iron in the United States in the first half of 1886, by States, is as follows:

	Net tons.		Net tons.
Alabama	146,230	New Jersey	79,113
California	1,750	New York	117,958
Connecticut	10,245	North Carolina	1,000
Georgia	22,891	Ohio	432,904
Indiana	10,972	Pennsylvania	1,541,793
Illinois	195,630	Tennessee	95,045
Kentucky	19,351	Texas	250
Maine	2,420	Virginia	69,768
Massachusetts	3,886	West Virginia	49,952
Maryland	11,198	Wisconsin	24,773
Michigan	89,105	Total	2,954,200
Missouri	28,182		

The production of Bessemer steel rails in the first half of 1886 was as follows: Pennsylvania, 489,790 net tons; Illinois, 163,978 tons; other States, 53,679 tons; total, 707,447 tons, an increase of 85,286 tons over the last half of 1885. The production in the same period of Bessemer steel ingots was, Pennsylvania, 656,342 net tons; Illinois, 211,413 tons; other States, 181,098 tons, making, with 24,810 tons of Clapp-Griffiths ingots, a total production of 1,073,663 net tons, an increase of 135,245 tons. The production of open-hearth steel ingots was: New England, New York, and New Jersey, 9,261 net tons; Pennsylvania, 61,590 tons;

Southern and Western States, 21,689 tons; total, 92,540 tons, against 80,543 tons in the last half of 1885. These statistics of the production of all kinds of pig-iron and of Bessemer steel rails and ingots for the first six months of 1886 may be more than doubled to give the total for the entire year. The annual reports of the American Iron and Steel Association are not made till May; but as a basis, with increase for the production of other kinds of iron and steel for the entire year 1886, may be taken the following principal statistics in 1885:

Bar, rod, hoop, skelp, and shape iron, net tons.....	1,200,958
Plate and sheet iron, except nail-plate, net tons....	345,069
Iron and steel cut nails and spikes, kegs of 100 pounds.....	6,696,815
Steel, or combined iron and steel cut nails and spikes, kegs of 100 pounds.....	1,823,127
All-rolled iron, including iron nails and excluding rails, net tons.....	1,789,711
All kinds of steel, net tons.....	1,917,350

The growth of the iron and steel industries of the United States in the past twenty years is remarkable. Pig-iron is now produced in twenty-six States and two Territories, and the production increased from 931,582 net tons in 1865 to 5,178,122 tons in 1882. Pennsylvania leads in producing one half the total amount in the country. In the past six years the Southern States show an increase in production of 52 per cent. In Virginia the increase was from 29,934 tons in 1880 to 163,782 tons in 1885, or 447 per cent.; in Alabama the increase was from 77,190 tons to 227,438 tons, or 194 per cent.; and in Tennessee from 70,873 tons to 161,199 tons, or 127 per cent. Illinois also shows an increase, while there has been a decrease in New England, New York, New Jersey, and Missouri, partially attributable to the greater cheapness with which the raw materials can be brought together in States which show the increase. At the close of 1885 the whole number of blast-furnaces in the United States, not counting those abandoned or not likely to be put in blast, was 591, and nine new furnaces were erecting in the South. The Carnegie furnaces at Pittsburg, Pa., can produce 600,000 net tons of pig-iron annually, which is probably the largest furnace capacity under one management in the world; and the furnaces of the North Chicago Rolling-Mill Company at Chicago and Milwaukee produce 432,000 net tons a year. In the past twenty years this country has increased its production of pig-iron 456 per cent. Germany comes next in relative progress, with an increase of 237 per cent. Then follow Austro-Hungary, 152 cent.; Great Britain, 76 per cent.; France and Belgium, each 64 per cent.; and Sweden, 53 per cent. Sixteen years ago Great Britain made one half of the world's total product of pig-iron; since then she has declined, though she still excels us in the production of both pig-iron and steel. But our consumption is much greater, this country consuming one fourth of all the pig-iron and one third of all the steel produced in the world. In the first seven months of 1886 we imported from Great

Britain 454,813 gross tons of iron and steel, including 19,980 tons of rails and 193,354 tons of pig-iron; and we are large buyers of spiegeleisen steel blooms and wire rods from Germany. This country has an advantage in the constant discovery and opening of new coal and iron mines, generally in proximity. Within two years there has been a remarkable development of new iron-ore fields in Minnesota and Michigan. In one year, from 1884 to 1885, the shipments of ore from the Vermilion district in Minnesota increased from 62,124 gross tons to 225,484 tons; and from the Gogebic district in Michigan, from 1,022 tons to 111,661 tons, the ores from both districts being especially adapted to the manufacture of Bessemer steel by the original process. The North Carolina and Tennessee mines are increasing their production. In 1885 a rich manganeseiferous iron-ore field was discovered and is now worked at Batesville, Arkansas, the ore being used for the manufacture of spiegeleisen and ferro-manganese. The present production of domestic iron-ore in this country is estimated at 7,600,000 gross tons, about one third of which comes from the Lake Superior mines. The beginning of Bessemer steel-manufacture in this country was at Wyandotte, Michigan, late in 1864, and at Troy, New York, early in 1865, and in May of that year the first steel rails were rolled at Chicago. From 1865 to 1882 the American production of steel of all kinds, principally Bessemer steel, increased from 15,262 net tons to 1,945,095 tons. The increase in the manufacture of steel rails was from 2,550 net tons in 1867 to 1,460,920 tons in 1882, while in the same period the natural decrease in iron rails, for which steel rails are everywhere substituting, was 905,930 net tons in 1872 to 14,815 tons in 1885. No other country shows such rapid growth in steel industry. The immense increase in the manufacture of steel rails is due to the activity in railway - building in the United States, the number of miles of railway in operation in this country having increased from 34,000 miles in 1865 to about 180,000 miles in 1886. Domestic manufacture is encouraged by the fact that our importation of iron and steel rails decreased from 458,055 gross tons, value, \$17,360,297, in 1871, to 4,203 tons, value, \$104,494 in 1885. The increase in American steel industry in the past two years is indicated by the following facts: In September, 1884, there were in the United States twenty standard Bessemer steel works with forty-five converters, and one new plant erecting. In August, 1886, there were twenty-seven standard Bessemer steel works, with fifty-eight converters, and seven new plants erecting. The increase is due to erection of plants for making plates for steel nails, billets for machinery steel, wire-rods, wire, and other purposes. The annual ingot capacity increased from 2,490,000 net tons in 1884 to 4,102,000 tons in 1886. This increase is partly due to the erection of new plants, but

chiefly to improved practice and more machinery in the established works. The first Bessemer steel made in any State south of West Virginia was at Chattanooga, Tennessee, in April, 1886, and a large Bessemer steel plant is now there erecting for the manufacture of steel rails. The erection of plants for the Clapp - Griffiths process, described as "first-cousin to the Bessemer process," has increased from one in 1884, to six completed works in 1886, with two more now in course of erection; and the annual ingot capacity of the eight works will be 200,000 net tons, an increase from 5,000 tons two years ago. The steel is principally used for nail plate and wire rods, and the works are located in three different States. In September, 1884, there were thirty-five open-hearth steel works in the country, with three erecting, and in August, 1886, there were forty-two works, with seven more erecting. The product has increased from 550,000 net tons in 1884 to 660,000 tons as estimated in 1886. The Bessemer industry and the open-hearth industry are located each in eleven States, or together in fourteen different States. The crucible-steel industry can scarcely compete with the more modern methods, and has declined from forty-one works, with an annual capacity of 115,000 net tons of ingots, in 1884, to forty works, with an annual capacity of 110,000 tons of ingots, in 1886. Crucible-steel is used especially for fine springs and for fine tools, with or without a cutting edge, and always will be in demand. But many manufacturers are adding to their crucible-works open-hearth furnaces, which produce steel that is growing in favor for locomotive-boilers and fire-boxes, locomotive and car springs, and agricultural machinery. Cheap steel is also interfering to some extent with the forges that make wrought-iron directly from the ore. Only a few hundred tons of hammered bar-iron are now made in this country, mostly in the mountainous districts of some of the Southern States, and the finished iron now produced is almost entirely made by rolling. In the past six years thirty States and one Territory have had mills for rolling iron, and this branch of industry is more widely distributed throughout the Union than the production of pig-iron. Yet the total production of all kinds of rolled iron, including iron rails, declined from 2,493,831 tons in 1882, to 1,804,526 tons in 1885, as several States have stopped rolling rails altogether since the general substitution of steel for iron rails. Seventeen States in the Union make cut nails, which, before 1883, were made only of iron, but since that year the increase in the product of steel nails has been from 18,224 kegs of 100 pounds to 1,823,127 kegs in 1885. Other iron and steel industries now in successful operation in the United States are twenty-five locomotive works, eighty-five car-works, seventy-six car-axle works, one hundred and eight car-wheel works, twenty-five wrought-iron-pipe works, and thirty-one cast-iron-pipe works.

The manufactories of all kinds producing iron and steel goods are innumerable. Sixty-eight rolling-mills and steel-works, most of them in Pennsylvania, use natural gas as fuel, and sixteen more are now preparing to use it.

ITALY, a kingdom in Southern Europe. The executive power is exercised by the sovereign, through ministers responsible to Parliament. The legislature is composed of a Senate, the members of which are nominated by the King, and a House of Deputies, who are elected by ballot, on departmental tickets, by citizens who can read and write and pay 20 lire of taxes, in the proportion of one deputy to 57,000 inhabitants. The legislative period is five years, but Parliament may be dissolved at any time by the King, who must order new elections, and convolve a new Parliament within four months.

The reigning sovereign is Umberto I, born March 14, 1844, who succeeded his father, Vittorio Emanuele, Jan. 9, 1878.

The ministry, constituted June 29, 1885, is composed as follows: President of the Council and Minister of the Interior, Agostino Depretis; Minister of Foreign Affairs, Count C. F. Nicolis di Robilant; Minister of Public Instruction, Michele Coppino; Minister of Finance and the Treasury, Agostino Magliani; Minister of War, Gen. Cesare Ricotti-Magnani; Minister of Marine, Benedetto Brin; Minister of Justice and Ecclesiastical Affairs, Diego Tassan; Minister of Public Works, Francesco Genala; Minister of Agriculture, Industry, and Commerce, Bernardino Grimaldi.

Area and Population.—The area of the kingdom, as computed by the Military Geographical Institute, is 110,620 square miles, of which 9,935 square miles belong to Sicily, and 9,293 to Sardinia and the minor islands. The population, on Dec. 31, 1885, was officially estimated at 29,699,785 persons. The density of population varies from 965 per square mile in the department of Milano to 63 in Sassari, Sardinia. The number of marriages in 1885 was 233,931; of births, 1,165,258; of deaths, 826,505; excess of births, 338,753. The births and deaths include 39,288 still-born.

The number of emigrants in 1885 was 157,193, of whom 78,232 went to various European countries—5,435 to Algeria, Tunis, and Egypt, 13,096 to the United States and Canada, 40,054 to the Argentine Republic, 19,340 to other American countries, and 1,036 to Asia, Oceania, and Africa. According to the census of 1881, 16 per cent. of the men over thirty years of age, and 23 per cent. of the women over twenty, are unmarried. About half of the population are dependent on agriculture, stock-raising, and forestry. There were 8,246,721 persons engaged directly in agricultural occupations, 244,452 in the rearing of cattle, and 59,651 in the forest industry. In Piedmont, Liguria, the Abruzzi, and Sardinia many farmers own their land; in middle Italy land is rented on shares; and in Lombardy, Venetia,

and Campania rent is usually paid in money. Sicily, Calabria, Basilicata, and Latium furnish the great majority of the day-laborers, who are miserably paid. In Sardinia, Umbria, Latium, Basilicata, and Calabria, cattle-breeding is carried on largely. The number of artisans in Italy, in 1881, was 4,416,679, including 739,889 employers and unpaid assistants. The number of persons dependent on trades and industrial occupations is estimated at 7,800,000, or one fourth of the total population.

Commerce.—The total value of the imports in 1885, including precious metals, was 1,575,-200,000 lire or francs; of the exports, 1,134,-300,000 lire. The imports of cereals were 175,400,000 lire in value; exports, 42,700,000 lire; imports of beverages, 28,400,000 exports, 61,400,000 lire; imports of colonial produce, 101,300,000 lire; of tobacco, 20,800,000 lire; imports of seeds, fruits, and roots, 24,600,000 lire, exports 69,200,000 lire; imports of animals and animal-food products, 105,700,000 lire, exports 100,300,000 lire; the total imports of articles of consumption, 456,200,000 lire, the total exports 278,000,000 lire. The imports of textile materials amounted to 164,-900,000 lire, the exports to 310,300,000 lire; the total imports of raw materials to 434,400,-000 lire, and the total exports to 414,400,000 lire. The imports of manufactured products were 409,200,000 lire in value, and the exports 148,600,000 lire. The imports of drugs, chemicals, oils, and all other articles amounted to 247,800,000 lire, and the exports to 288,000,-000 lire. The imports of precious metals were 27,600,000 lire, and the exports 10,300,000 lire. The commercial intercourse with the principal foreign countries is shown in the following table, giving the imports and exports, in lire:

COUNTRIES.	Imports.	Exports.
France.....	367,500,000	518,700,000
England.....	314,100,000	73,800,000
Austria.....	236,100,000	101,500,000
Switzerland.....	77,000,000	124,900,000
Russia.....	91,500,000	18,100,000
United States.....	72,500,000	45,600,000
Germany.....	120,400,000	105,200,000
South and Central America.....	16,100,000	25,800,000
Turkey, Servia, and Roumania.....	48,100,000	14,400,000
Other countries.....	231,600,000	111,000,000
Total.....	1,575,200,000	1,134,300,000

Navigation.—The number of vessels entered at Italian ports during 1885 was 113,051, of 18,441,308 tons; the number cleared 112,334, of 18,358,420 tons, the number entered with cargoes 82,447, of 14,977,227 tons; the number cleared with cargoes 76,920, of 11,620,563 tons. Of the entries, 16,912 were employed in foreign trade, with a tonnage of 5,902,982; and of these 9,847, of 1,453,423 were Italian. The number of steamers was 5,390, of 4,753,607 tons, of which 937,741,447 tons were Italian. The coasting-vessels entered numbered 96,139, of 12,538,326 tons, of which 91,830 of 9,163,-195 tons were Italian. The number of sailing-vessels registered in the kingdom on Jan. 1,

1886, was 7,111, of 828,819 tons; the number of steam-vessels 225, of 124,600 tons; total 7,336, of 953,419 tons.

Railroads.—The railroads on Dec. 31, 1884, had a total length of 9,916 kilometres. The receipts in 1884-'85 amounted to 210,745,931 lire, and the expenses to 158,645,228 lire. The cost of construction up to Dec. 31, 1884, was 2,875,064,284 lire.

The Post-Office.—The number of letters sent through the mails in 1884-'85 was 195,179,324, including postal-cards; the number of circulaires, etc., 173,250,108. The receipts of the post-office were 38,111,518, the expenses 33,-204,415 lire.

Telegraphs.—The length of telegraph lines at the close of 1884 was 29,188 kilometres, that of wires 103,080 kilometres, not including 186 kilometres of submarine cable. The number of paid internal dispatches in 1884 was 5,652,-278; of foreign dispatches, 568,271, not including 174,937 in transit. The receipts were 12,393,886 lire in 1884; the expenses for service, 9,998,892; for maintenance, 183,440; extraordinary, 294,714 lire.

The Army.—The effective strength of the permanent army was officially reported for Jan. 1, 1886, to be 892,687 men of all ranks, including 295,341 infantry, 26,590 Alpine troops, 46,243 bersaglieri, 300,996 district troops, 34,001 cavalry, 97,923 artillery, 28,208 engineers, 24,496 carabinieri, 14,112 officers active and on leave, 3,431 complimentary officers, and 3,563 officers of the reserves, besides the sanitary corps, drill troops, etc. The mobile militia numbered 365,717 officers and men, including the auxiliary services, and the territorial militia 1,128,928, making the total war effective 2,387,332. In December, 1886, the Chamber authorized the Minister of War to increase the regular artillery forces, which will have altogether about 1,100 guns. The minister said that in case of war Italy would be able to place in the field 500,000 well-armed regular troops.

The land frontier is protected by fortifications constructed or in process of construction, in the principal passes of the Alps, according to a plan adopted in 1874. The coasts are strongly fortified, and a circle of forts is in process of construction for the protection of Rome. Spezzia, the principal naval arsenal, is being fortified at an expense of 4,000,000 lire.

The Navy.—The Italian navy possesses the most powerful and heavily armored ships in the world. The "Duilio" and "Dandolo" are of the central citadel type, not so strongly protected as the British "Inflexible," but superior in speed, and carrying heavier guns. The largest vessels are the "Italia" and "Lepanto," which are to have twice the engine-power of any war-ship yet constructed, with a speed of eighteen knots. They have no side-armor, but thick inclined deck-armor, and vertical armor to protect the barbette

tower and the funnels and hatchways. Three other monster ironclads are not so large, but carry equally heavy guns. There are two more, not yet launched. Eight other armored vessels are of older types and lighter armor and armament. There are three smaller ironclads, placed in the second class. Four protected cruisers, with rams and torpedo equipment, are under construction, and more are contemplated. The Italian navy has 11 war-vessels of the first class completed, with 7 in progress, and 3 of the second class. There are to be 12 torpedo-vessels, one of which is completed. The number of torpedo-boats completed is 55, while 28 are building.

Finances.—In 1880 the revenue exceeded the expenditure by 19,000,000 lire. In 1881 there was a surplus of 51,000,000 lire, and in 1882 of 94,500,000 lire. Since then the expenditures for the reorganization of the army, monster ironclads, the fortification of the capital and other defensive works, the construction of new railroads, the interest on the new loan for the establishment of a gold currency in the place of irredeemable paper, the remission of the flour, salt, and land taxes, and the so-called ultra-extraordinary expenditures for the relief of sufferers from floods and the Ischia earthquake, on account of cholera, and for the African expedition, have made it impossible for the Minister of Finance to keep the disbursements below the amount of the receipts. In 1883 there was a trifling deficiency of 106,471 lire, and in the first half of 1884, when the fiscal year was changed so as to end on June 30, one of 5,496,531 lire. The accounts for the eighteen months of 1884-'85 show a surplus of 35,335,530 lire, yet to cover the extraordinary expenditures in that period, and in 1885-'86 the minister was authorized to sell ecclesiastical estates of the value of 40,000,000 lire. The revised estimates for 1885-'86 showed a deficit of 10,904,847 lire, but in his electoral address in May, 1886, the Prime Minister said that the receipts had exceeded the estimates by 35,000,000 lire. The budget for 1886-'87 makes the ordinary receipts 1,525,412,598 lire; the extraordinary receipts 193,614,541 lire; total receipts 1,719,027,139 lire, and the ordinary expenditures 1,423,916,040 lire; the extraordinary expenditures 276,313,120 lire; total, 1,700,229,160 lire. The budget provides for the sale of public property and the creation of new debt to the total amount of 41,101,917 lire, and for the expenditure of 142,450,000 lire on the construction of railroads. The receipts from railroads and other public property are estimated at 76,681,378 lire; from direct taxes, 391,565,716 lire; from stamps, registration, etc., 187,388,000 lire; from customs, excise, and monopolies, 594,927,245 lire; from various taxes, 76,502,000 lire; from the postal and telegraph services, 75,524,825 lire. The ordinary expenditure for the army is fixed at 220,106,618 lire, the extraordinary expenditure at

37,185,000 lire. The ordinary expenditure for the navy is 71,315,660 lire, the extraordinary expenditure 14,016,000 lire. For public works the ordinary expenditure is reckoned at 78,529,878 lire, and the extraordinary at 185,983,274 lire.

The interest on the 5 per cent. consolidated debt in 1886 amounted to 441,949,063 lire, and on 3 per cent. consols to 6,408,080 lire. The total interest on debts of all descriptions in 1885-'86 was 534,304,418.

Equalization of the Land-Tax.—The rural population of Italy have suffered more than the agricultural class in other countries, chiefly on account of excessive taxation. The Government had long promised relief, and when in 1885 the question was still kept in the background, dissatisfaction was shown in the Chamber by a portion of the Government majority. In 1884 an extensive strike occurred among the wretchedly paid farm-laborers in the province of Rovigo, and in 1885 one in Mantua. A commission appointed to study the question of land reform made a voluminous report at the end of 1884, in which the chief recommendation was that wheat should be cultivated less, and wine and olives more. The reduction and equalization of the land-taxes have occupied the attention of every government from the foundation of the united kingdom. The cadastral surveys, twenty-two in number, are from fifty to a hundred years old. Much productive land, especially in South Italy, is classed as waste, and escapes taxation altogether. In other places the taxes amount to 60 per cent. of the rent. In the north the land is, on the whole, more heavily burdened than in the south. The communal and provincial taxes have been constantly increased. The project of tax reform, worked out by a committee, of which Minghetti was chairman, was at last brought before the Chamber in November, 1885. It was opposed by the great proprietors of the south and others who were interested, but finally passed on Feb. 6, 1886, by a vote of 290 against 91. The average rate of taxation is fixed at 3·70 lire per hectare. The new survey and valuation will take twenty years, but some of the grosser inequalities are to be removed immediately. Another law, proposed by the Minister of Agriculture, is expected to improve the badly organized credit system, and facilitate the raising of money on mortgages.

Parliamentary Conflict.—Toward the end of 1885 the majority began to split up, and the ministry was subjected to attacks from members of the Right and the Center, as well as from the regular opposition. Depretis was accused of having broken all his promises and performed no part of his programme of Stradella; Robilant of having compromised Italy by his interference in the Bulgarian question, and missed opportunities for territorial gains; and Maglani of having brought out, instead of the promised surplus, a deficit in the accounts

for 1884-'85, and of having sought to conceal it. The deserters from the Ministerial party left only a small majority for a bill providing that the new indirect taxes should go into force immediately in order to prevent loss of revenue. Shortly afterward they would have carried a vote against the Government on a formal question, had not the Left sustained the ministers, not being strong enough to assume the government themselves. The growing hostility toward the Government was revealed by the election in Pavia. An eccentric scholar named Sbarbaro published a paper called "Le Forche Caudine," in which, in what he supposed to be the interests of morality, he printed some scandalous reports, partly true and partly false, concerning prominent men, among them members of the Cabinet. He was tried and sentenced for slander to seven years and a half of imprisonment. The Opposition press raised a clamor against so barbarous a sentence, and the Radical and Conservative enemies of the ministry joined forces in Pavia and elected the convict to the Chamber of Deputies in the early part of 1886. They insisted that the law granting immunity to members of Parliament applied to his case, and the Government yielded the point, and released him. But, when he again began to publish his journal, his constituents gave him so cold a reception that he resigned his seat.

When Magliani presented his budget in the beginning of March, Crispi, Cairoli, and Zanardelli from one side, and Coppino, Spaventa, and Rudini assailed the Government at all points. There were thirty-six orders of the day proposed, but on the 6th of March the one approved by the Government was voted with 15 majority, and the definitive budget was passed shortly afterward with a majority of 36 votes.

Dissolution of Parliament.—Recognizing that he could not carry on the Government with this small and wavering majority, Depretis sent in his resignation. The King called Biancheri, President of the Chamber, but he declined to undertake to form a ministry, and declared that a coalition cabinet from the two wings of the Opposition was an impossibility. King Umberto, therefore, decided to dissolve the Chamber, as proposed by Depretis. In his report to the King, which was published with the decree of dissolution, Depretis said that the important acts of the last Legislature, such as those dealing with accident insurance, liability of employers, the revision of the tariff, the railroads, lowering of the price of salt, reduction of the land-tax, improvement of the military power, equalization of land-taxation, etc., had not been carried through without causing differences of opinion to arise in the bosom of the majority that deprived it of the necessary decision for effecting the important reforms that were still needed. The result of the elections, which took place on May 23, was a victory for the Government. About

300 among the 508 newly elected deputies belonged to the Government party, but there were dissensions within the party.

The Opposition faction of the Monarchical Left is commonly known as the Pentarchist party, because it was founded in 1883 by five leading Liberals — Cairoli, Crispi, Nicotera, Zanardelli, and Baccarini—who united against Depretis. Their chief complaint against the Prime Minister was that, while he used severe repressive measures against Republicans, Irredentists, and Anarchists, he allowed the Clericals in Rome complete freedom for their treasonable demonstrations. The Pentarchists adopted no distinctive programme, excepting the exclusion of Clericals from the communal and provincial administrations and the payment of salaries to deputies. An episode that occurred in the early part of 1886, after Pope Leo's recent allocutions filled with invective against the Government, intensified the widespread animosity against the Church. A newspaper in Rome published an account of a conspiracy of Clericals to overturn the monarchy and restore the temporal power of the Pope and the former reigning houses in Italy, with the help of allies in Berlin, Vienna, and Paris, and of accomplices among the high dignitaries of the Church. The Pope himself was declared to be cognizant of the plot. A certain Count Dorides had been arrested for treason because he had obtained, by bribing an official, secret papers of the marine department, containing naval instructions, and had sent them to the Clerical committee in Paris. When interpellated regarding the "conspiracy in the Vatican," the Minister of Justice said that the revelations in the newspaper accorded with one of the documents of the trial. Cardinal Jacobini at once sent word to the courts of Europe that the document was a malicious forgery, and complained bitterly that the Italian Government had not thus denoted it. The Pentarchists, whose peculiar anti-Clerical views have no motive except to outbid the Government party for popular support, suffered some losses in the general election. In the new Chamber they counted about 150 votes. There were individual Republicans, Socialists, and Anarchists elected. The political convict Cipriani obtained a large majority both in Ravenna and Forli. The election was declared invalid by the Chamber, because he was a common felon, but both constituencies chose him again. After the elections the Government attempted to suppress the Labor party, under a law forbidding incitements to insurrection and the overthrow of existing political institutions. They were accused of seeking to prepare an extensive strike of agricultural laborers, and of encouraging such a strike in their electoral programme. All the associations that subscribed to the programme, of which there were 150 in north Italy, were suppressed. Eight of the leaders of the party, including the candidates for the Chamber, were arrested in

Milan on June 23. Others were arrested in Como, Pavia, Cremona, Brescia, and Novara. Coccapieller, who was serving a term in state-prison for publishing libels, some of which turned out to be true, was elected a deputy for Rome, pardoned, and took his seat.

Conflict between Church and State.—A letter of the Pope, in praise of the Jesuit order and the restoration of certain of its privileges, aroused the anti-Clerical feeling of the Liberal parties in Italy more than any of his recent complaints and declarations regarding the wrongs suffered by the Church. The Government was impelled to appoint a commission to investigate the monastic institutions, and discover how many novices they received, what property they had acquired and held in the names of pretended buyers, and other violations of the law for the gradual suppression of the monasteries, which the Government has hitherto allowed to remain a dead letter. The Jesuits who acquired real estate and erected new convents were threatened with expulsion. The assertion by the Pope of the claim to the restoration of the temporal power encouraged the Clericals to new activity. In Naples on September 26, while the Liberals were celebrating the entry of the Italian troops into Rome, a counter-demonstration was arranged by several Clerical associations. The latter, shouting, "Long live the Pope-King!" attempted to break up the procession, and blows were exchanged. The Depretis ministry had made various concessions to the Curia, such as restoring the religious teachers in the schools and refraining from the exercise of the right of patronage in the appointment of bishops and priests. But when this conciliatory policy was required by continued appeals to foreign powers to restore the Papal sovereignty in Rome, they determined to carry out the law for the confiscation of monastic property, which provides that the old members may remain in the cloisters, but that no new members shall be taken. Anti-Clerical demonstrations took place in all the large cities. The participants demanded the abrogation of the guarantee law and the separation of church and state. In October the Vatican addressed complaints to the powers and in November a second note, dwelling on the unendurable position in which the Pope, not only as "sovereign of the Papal States, but as head of the Catholic Church," was placed by these demonstrations. Earlier in the year the Clericals found fault with the Government for allowing the organization of an Old Catholic Church in Rome, for the establishment of which two well-known Italian priests deserted the Roman Catholic Church.

Quarrel with Colombia.—The Governor of the State of Cauca in the Colombian Republic, after suppressing an insurrection, threatened an Italian millionaire named Cerruti, resident there, with arrest and the attachment of his property, on the charge that he had abetted the rebels. After the latter had applied in

vain for a pass to visit Bogotá and bring his case before the chief judicial authorities, he was suffered to go to Buenaventura after Capt. Cobianchi, of the Italian war-ship "Flavio Giovia," had promised to deliver him up again, supposing him to be already in custody. When he learned that this was not the case, he tried to telegraph to the Italian minister. The Colombian authorities then attempted to arrest Cerruti, but Cobianchi manned all his boats, and brought his countryman on board his vessel. The dispute was referred, on the proposal of Italy, to the Spanish Government for arbitration, on condition that the conduct of the Italian officer should not be reviewed.

Colonies.—The Italians possess a colony and naval station at the Bay of Assab, on the coast of the Red Sea. The district has an area of 632 square kilometres, and had, in 1882, 1,300 inhabitants. In 1885 they extended their possessions on the western coast as far as and including the port of Massowah (see ABYSSINIA). The Porte on Dec. 26, 1885, protested against the Italian occupation of Massowah, and raised a claim for indemnity. Egypt, after annexing Massowah and Suakin, agreed to pay a larger tribute to the Porte, which therefore now claimed from Italy the additional sum paid on account of Massowah. The Italian Government maintained at Massowah in 1886 a force of 3,000 soldiers, but they were not able to protect the surrounding country from Abyssinian marauders, who under a chief named Ras Alula plundered the Habab tribe that entered into a treaty of friendship with the Italians in the early part of 1886. The Italian Government sent Gen. Pozzolini on a mission to the King of Abyssinia, but King John first appointed a place far in the interior for the meeting, and then sent word that he was detained by state affairs in a distant province. The Italian embassy after this rebuff returned to Italy. In the hope of extending Italian trade and influence in Africa, a well-equipped mission was sent by an Italian Geographical Society to Harrar, where the British had placed on the throne a descendant of the former reigning family, a fanatical Mohammedan, who had determined to drive all foreigners out of his dominions. Count Porro and the other members of the expedition were robbed and then murdered by his soldiers, in May. The Italian Government requested the English to co-operate in a joint expedition to punish the Sultan of Harrar, but, when the Government at London declined, gave up the enterprise. In the beginning of September another Abyssinian robber, Debeb, a nephew of King John, made an incursion into Italian territory and attacked a company of Bashibazouks in the service of the Italian Government. In the autumn King John, who controls a large military force armed with Remington rifles, called a great council, which was supposed to portend an attempt to drive the Italians out of Massowah.

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JAPAN, an empire in eastern Asia. The government is imperial, with a steady tendency toward modern representative forms. The people inhabiting the crescent-shaped archipelago of Dai Nihon are Japanese, Riu-kiuans, and Ainos, numbering in all 37,442,966 by census of 1883. Formerly forbidden on pain of death to leave their country, the Mikado's subjects now travel freely all over the world. Permanent colonies of Japanese are located in China, Corea, the Philippines, Hawaii, the United States, and Europe, numbering in all 5,000 souls, of whom 86 are in the employ of foreign governments.

American Relations.—In addition to the treaties made by Commodore M. C. Perry and Hon. Townsend Harris, the return in 1884 of the Shimonoméki indemnity fund, postal and money-order conventions and minor agreements made between the two countries, a treaty of extradition between the United States and Japan was ratified by the U. S. Senate, June 21, 1886. This important action places Japan, so far as the American Government is concerned, on a footing with the most enlightened nations of Europe. In addition to the large number of American teachers, missionaries, and scientific men who have labored in Japan, the Japanese students have found hospitable welcome in American schools, homes, and hospitals, and friends in time of need. The ambassadors Iwakura and Okubo, when living, made handsome official acknowledgment of this indebtedness. The standard political literature of the United States has been translated and widely read by the Japanese. Our diplomatic offices in Tokio and the ports number eleven, now held by eight persons. The head of the legation of the United States is Richard B. Hubbard, of Texas; and the Consul-General, Clarence R. Greathouse, of California.

Finance.—By report of the Finance Minister, Matsukata Masayoshi, rendered April 21, 1886, estimates of the nineteenth year of Meiji (Enlightened Peace), A. D. 1887, are set forth. Whereas formerly the entire revenue of Japan was collected from the taxes on land, modern methods of taxation have distributed the burden on nearly all classes, and relieved the farmers, as the following items show: Tax on land, \$43,151,582; saké (rice-beer), \$14,843,039; tobacco, \$1,501,184; bank-tax, stamps, rice and stock-exchanges, yeast, soy, confectionery, patent medicines, shipping, carts, sporting licenses, etc., \$5,292,224. Other items of revenue are: Railway and post, \$3,184,267; forests, \$392,393; business transactions, \$1,413,168; rents and sales of public properties, \$473,771; fees on grants, \$102,516; miscellaneous incomes, \$1,396,105; total revenue, \$74,695,415. The expenditures were: Interest and pensions, \$20,729,043; imperial household,

\$2,340,000; maintenance of shrines, \$268,213; expenses of the Government departments, \$50,805,921; construction of palace and capitol, \$545,897; total expenditures, \$74,689,014. Among items pertaining to the public debt are: Old national debt, \$245,427,829; new national debt, \$10,591,275; pension bonds, \$164,860,535; paper currency, \$76,934,727; reserve in treasury, \$43,865,408; money lent to people to promote industries, \$18,316,823. Notification has been made of a proposed new loan of \$175,000,000 at 5 per cent. interest, with the view of calling in other loans at higher interest.

There are about 200 national banks in the empire, which have in circulation their own notes to the nominal value of \$30,000,000, in addition to the Government issue. In Tokio, in 1886, 22 banks had capital ranging from \$25,000 to \$1,500,000, and declared dividends of from 6 to 19 per cent.

Coinage.—The Osaka Mint, one of the most successful of the Government enterprises, employs 186 officers, and 489 servants and workmen, 18 of these persons being at the branch in Tokio. The plant is provided with the finest European machinery, and has also a sulphuric-acid and soda manufactory. From its opening until June 30, 1885, it coined 1,210,350,977 gold, silver, or copper pieces, weighing 302,794,900·96 ounces, valued at \$121,883,188.10. During the year past there were accepted for coinage 44,897·78 ounces of gold, 5,655,149·44 ounces of silver, and 1,881,640·05 pounds of copper. The coins struck numbered 101,152,183, valued at \$7,467,929.07, of which 168,116 were of gold, worth \$840,580; 5,869,548, worth \$5,869,548, were of silver; and 95,114,519, worth \$757,801.07, were of copper.

Politics.—The nineteenth year of Meiji, the restoration of the Mikado to supreme power, and of the reign of the Emperor Mutsuhito, the one hundred and twenty-third ruler of his line, finds the empire at profound peace and in full career of progress. The Mikado, now thirty-four years old, is surrounded by advisers, the majority of whom are young men like himself, and educated mostly in the United States or Europe. The old heroes and dignitaries on both sides of the civil war of 1868-'70 are nearly all dead. The old nobilities, the kugé or court nobles, and the daimio or landed barons, have shrunk to a status almost wholly non-political. Arisugawa Takahito no Miya, a prince of imperial blood, died Jan. 24, 1886. Komatsu, a noble of like rank and blood, is with his wife and suite traveling in Europe. The new Cabinet, at the head of which is Count Ito, has worked well during its first year of organization, and the quiet removal of several courses of intermediaries between the

throne and the people, consummated Dec. 22, 1885, has proved thus far a measure powerfully influential for the welfare of the nation, and especially in the direction of simplicity and economy. By this master-stroke of policy 8,000 Government employés were removed from office. There were on the 31st of May, 1886, in the pay of the Imperial Government, 1,362 high officers and 13,794 clerks, most of them being in Tokio. Three grades of employment, with numerous subdivisions, are recognized, and the salaries are fixed as follow : 1. Minister President of State, \$9,600 ; minister, \$6,000 ; 2. \$5,000 to \$3,500 ; 3. \$3,000 to \$400. In Tokio there are, in addition to the military garrison, 3,123 policemen.

In preparation for the inauguration, according to the Mikado's oath in 1868, of representative government in 1890, the constitutions of the various governments of the world have been translated and studied. The political model may be Prussian instead of British. Two houses, an upper body of notables and a lower body of commons, will probably be constituted. An imposing edifice for the use of the Parliament has been planned under the direction of a Berlin architect, and is in process of construction. A national exhibition of industry will be held the same year in Tokio. Courtesies between the Pope and the Mikado have been exchanged. In the matter of treaty revision little progress has been made, except the proposition of a dual status of foreigners, viz., that those doing business in the seven treaty settlements should live, as heretofore, in extra-territoriality, while those who dwell beyond treaty limits should be under Japanese jurisdiction, with the right of appeal to mixed courts in which native and foreign judges sit.

Fashions and Industries.—The land under cultivation throughout the empire, in 1885, amounted to 30,604,822 acres, valued at \$1,654,063,180. The annual mineral production is officially estimated at \$6,000,000 yearly. The rapid assimilation of foreign civilization by the people is the cause of many new industries springing up, while the demand abroad for novelties in Japanese art and handiwork tends to stimulate manufactures and trade. Flour and woolen mills are increasing, and the adoption of Western diet, cookery, and apparel creates demand for new articles of food, furniture, and dress-fabrics. The imports of woolens, which in 1880 amounted to \$188,484, increased in 1885 to \$391,904, while the number of sheep imported is also larger. The Empress has set the example of wearing European dress and jewelry, and a revolution in female apparel and in native textile industries is impending. House-building in Western style, apartment-houses, the formation of social clubs, social life with more freedom between the young people of both sexes, waltzing, the use of brass bands and Western music, are among the signs of the times profoundly affecting trade and industry. Wheat and rice straw-

braid factories have been established at Yokohama, and find a good market for their product in the United States, to which country braid to the value of \$302,966 was imported in 1885.

A beet-sugar factory has been begun at Sapporo, to which place also seventeen American stallions have been imported to improve the native breeds. The value of silk handkerchiefs imported to the United States in 1884 was \$62,000, and in 1886, \$240,000. Of soy (shoyu), used as a basis of the table sauces made abroad, there were manufactured in 1885, 45,564,320 gallons, in 13,905 establishments, employing 13,247 men—figures which prove that this industry is not yet, as many others increasingly show, concentrated in the hands of the large capitalists.

Foreign Trade.—The customs returns of trade since 1868, published in July, 1886, show that the foreign commerce is healthfully developing. In 1869 the exports were less than \$13,000,-000, but during each of the past five years they have not fallen below \$20,000,000. The imports were valued in 1868 at \$10,500,000, in 1880 at \$36,000,000, and in 1885 at \$28,000,-000. The excess of imports over exports during eighteen years of foreign trade amounts to \$51,000,000. Great Britain has been the largest importer, but her imports have fallen from \$19,000,000 in 1880, to \$12,000,000 in 1885. The United States takes most of the silk and tea, and returns machinery and oil, two thirds of her exports to Japan being in petroleum. The silk-crop in all its products is valued at \$18,500,000, and the tea-crop averages 35,000,000 pounds. The yield of tea has increased threefold since 1868, but the price has fallen one half. The value of the foreign trade for the year 1885 amounted to \$61,608,740, imports \$29,999,025, exports \$31,609,735. As compared with 1884, this shows a decrease of \$40,530 in value of imports, and an increase of \$1,753,610 in that of exports. The ports open to foreign vessels are Yokohama, Hiogo, Niigata, Nagasaki, Hakodate, with some little business done at Shimonoséki, Hakata, and Idzugahara.

Two thirds of all export and import trade is done at Yokohama. Of the 9,449 vessels, aggregating 3,979,973 tons burden, entering and clearing at the open ports, 568 were British, 223 German, 77 American, 53 French, 54 of other foreign ownership, and 8,474 Japanese vessels of foreign build. Except 1882, the year 1885 marks the largest export trade yet done by Japan; but even this as yet represents a value of about \$5 only to each six persons of the population. These figures speak poorly either for the productive powers of the country, or the industrial character of the people. The unrestricted opening of the country to foreign trade and residence would give a great impetus to business. Half the cost in the preparation of tea could be saved if the product were packed and sealed for export at the place of picking; and the large spaces of unused land could be

utilized for raising wheat for export. At present the rice-trade is in the hands of the Chinese, but metals are controlled by Europeans. Of the 2,298 foreigners resident in Japan, 1,065 are British, 447 Americans, 269 Germans, 201 French, and the remainder of eleven different nationalities. The foreign firms number 210. There are 3,876 Chinese, with 180 firms, with a line of steamers from China. Since 1876 the loss of Europeans in numbers has been 375, and the increase of Chinese 1,769. Foreigners employed in Government service in Tokio are now fewer, by 200, than in 1876.

German influence—as shown in increased trade, the appointments to Government employment of teachers, architects, military and scientific men from Berlin, and the establishment of a monthly service to Yokohama of the North German Lloyd steamers—is increasing. The import of German flannels, which in 1880 was \$15,000, increased in 1885 to \$220,000.

Health and Climate.—Cholera broke out in the early part of the year in the southwestern ports, and, aided by polluted water and congenial weather, despite stringent hygienic measures, spread all over the empire, raging during the summer and autumn. For the week ending September 2, 4,279 deaths were reported, only six of which were of white foreigners, of whom three were of intemperate habits. To Dec. 6, 1886, out of 153,930 persons sick with cholera, 100,492 died. Burial is still the most common form of disposing of the dead, though cremation is largely practiced, about 10,000 corpses being annually incinerated at the four great and several smaller crematories near Tokio. During the coldest month of the year, January, the mean temperature was 30° Fahr., and during August, the warmest month, it was 77.3° Fahr., the mean of the year being 55.4° Fahr. The rainfall was 1 inch in February, in June and October each 11½ inches, and during the entire year 60.5 inches. Kagoshima, the warmest place, had a mean temperature of 61.2° Fahr.; Nemu, the coldest, 37.9° Fahr. At Kanazawa, on the west coast, 130 inches of rain fell, and at Sapporo, 39 inches. In addition to weather observations, the phenomena of earthquakes are now systematically recorded.

Navy.—The first order given by the Government for a modern ship of war was in November, 1853. The national flag of a red sun on a white field was adopted Oct. 29, 1854. Japan now possesses a fine iron-clad navy, more than half of her war-ships being of the latest modern type. The two new vessels built in England, the "Takéchibō Kan," and the "Naniwa Kan," arrived at Yokohama during the summer of 1886. At the finely equipped navy-yard of Yokoska (on Goldsborough Inlet, and near the grave of William Adams, the English pilot who built ships for Iyéyasu) was launched March 30, the "Musashi Kan." This corvette of 1,100 tons, pierced for nine guns, with four machine-guns on platforms, and her sister-ship, the

"Katsuragi Kan," were designed by Mr. Sa-chiu Sasow, of Tokio, who was educated in England. These vessels draw fifteen feet of water, steam thirteen knots an hour, have composite planking of teak and kékaki wood, and cost \$380,000 each. Their engines were made at Yokoska. An arsenal and yard for the manufacture of torpedo-gear, and a school of instruction in submarine practice, are in operation, the Japanese being already expert at this species of warfare. Count Saigo and a suite of seven officers, during the past summer, after visiting the United States, and inspecting all the naval stations, continued their observations in Europe, with the object of keeping naval science in Japan abreast of that in the West.

Commercial Marine.—In 1609 Iyéyasu passed a law compelling the daimios to collect all vessels of over 500 hoku (2,700 bushels) capacity, and burn them. This law was in force until Oct. 18, 1853, when seaworthy vessels were allowed to be built. Signs of the increasing activity of the merchant marine have been of late noticeable. To encourage the creation of fleets of trading-vessels able to cope with any in the world, and to win a large share of the commerce of Asia, the Government has forbidden the building of junks of less than 500 tons. Besides establishing marine schools, and equipping the coast with a superb lighthouse system, scientific attention is being paid to the location on charts of the strata of magnetic rocks along the shore. It is believed that these, by deflecting the needle, have been the cause of numerous shipwrecks. Safety of life is now made an important point. In the case of the British ship "Normanton," wrecked Oct. 24, 1886, off Oshima, when all the foreign passengers were saved, but twenty-five Japanese lives lost, the Japanese Government prosecuted the captain for manslaughter, and the accused was sentenced to three months' imprisonment. The annually published list of lighthouses shows that there are now 56 lights, 17 buoys, and 7 beacons maintained in admirable condition. Of the lights, 12 are of the first, 6 of the second, 5 of the third, 9 of the fourth, 9 of the fifth, and 4 of the sixth order. Statistics of the Marine Bureau show the total number of foreign-built ships belonging to Japanese in 1884 to be 1,642 (824 steamers and 878 sailing-vessels), and of junks 16,427. Of the steamers, 329 had a tonnage below 100, 38 between 100 and 300, 20 between 300 and 500, 13 between 500 and 1,000, 12 above 1,000 tons, while 412 were small ferry or river steamers. Of the sailing-ships, 80 were below 100 tons, 66 between 100 and 300, 44 between 300 and 500, and 1 was above 1,000 tons burden. During the same year, 507 junks of 112,292 koku (588,890 bushels) capacity, and 33 foreign-built vessels of 4,650 tons burden were lost, a decrease of 188 junks and 21 foreign-built ships as compared with 1883. Rapidity of steam transit across the Pacific is being increased, the run of the

"Gaelic" from Yokohama to San Francisco, September 15, being made in 13 days, 22 hours, and 32 minutes.

Education, Literature, and Religion.—Arinori Mori, formerly the Mikado's envoy to Washington, and now Minister of Education in Tokio, has devoted his energy to reforming and elevating the standard of education. Among the schools furnished with new and spacious edifices during the past year are the Méiji Law School and the new Normal School. The book-processes of the large cities were never more busy, and 833 authors applied for copyright certificates from Jan. 1 to Oct. 18, 1886. The five great daily newspapers of the capital circulate by mail in every province. Under date of Dec. 31, 1885, there were 1,065 law advocates registered. A commission to study and report upon the subject of art, with a view to maintaining and developing the national taste on native traditions and models, has been appointed and sent abroad. Messrs. H. Iwao, K. Okakura, and Prof. Ernest Fenollosa of Salem, Mass., compose the commission. Earnest efforts are also being made to reform the theatres and raise the standard of popular literature, with the view of eliminating the licentious and revengeful elements so prominent in the novel and drama of old Japan. By Government enrollment there were at the end of 1885, 38,141 persons in the empire openly professing the Christian faith. Statistics collected by the Protestant pastors show 151 churches in operation, with 11,604 members, who contributed in 1886 for benevolence and church purposes \$23,406.97. Thirteen American missionary societies employ 150 laborers in addition to native helpers. The Tokio Missionary Conference resolved to establish the native Feast of New Rice, which usually falls in November, as a national Christian Thanksgiving-day. The celebration took place on Tuesday, November 23. The Government is now fully tolerant of all religions, though still maintaining national and imperial shrines at an annual expense of \$268,213. Buddhism has been wholly disestablished since 1874. In 1714 there were 393,087 temples; in 1885 there were but 57,824.

JEWS. On Jan. 4, 1886, the centenary of Moses Mendelsohn's death was duly observed in Europe and America. At Dessau, Germany, the birthplace of the philosopher, the celebration was unique. In the larger cities, addresses were delivered on the life of Mendelsohn and his influence on Jewish emancipation.

For the year ending October 1, according to the statistics of the New York United Hebrew Charities, 27,000 Russian Jews landed at Castle Garden, the vast majority remaining in New York. To provide for the masses that have been attracted to America since the persecutions of 1882, has been a problem of no little difficulty. For the young and hardy, agricultural colonies were founded, a new one being organized in Gilead, Kan., early in 1886. Others exist in New Jersey, Dakota, and Kansas,

chiefly under direction of the Montefiore Agricultural Aid Society; and, as manufacturing interests are added in some cases, it is thought that they will succeed. At present only a few hundred families are provided for in this way, and the progress of these colonies is watched with much interest.

In the past year new temples have been built in Dallas, Tex.; Detroit, Mich.; Davenport, Iowa; Oakland, Cal.; Vincennes and Mount Vernon, Ind.; Rochester, Elmira, and Brooklyn, N. Y.; New York city; Birmingham, Ala.; Jersey City, Philadelphia, Chicago, Toronto, and Montreal. While Vienna adds a new synagogue to its list, Brisbane, Australia, builds one, as do also a number of smaller towns in Germany, Austria, and Hungary.

At Washington, D. C., a Hebrew Charity Fair was held in aid of the synagogue. In New York, \$175,000 was cleared by a fair in aid of the Montefiore Home for Chronic Invalids. In Dunedin, New Zealand, a bazaar netted a large amount for the local synagogue. Efforts were successfully made to raise funds for the Hebrew Technical Institute of New York and a new building was secured. Its pupils won high prizes at an industrial exhibition in New York. A new wing was added to the Baltimore Jewish Hospital in May. The Associated Hebrew Charities held their second annual session at Chicago on June 27th. The leading societies are contributing members. A new edifice was erected in New Orleans for the Jewish Widows' and Orphans' Home. Industrial training is more and more recognized in connection with the training of Jewish children.

In the Orders there were no new developments save the establishment of the "Menorah," July 1st, as a monthly organ of the Independent Order of Benai Berith, the largest and oldest; and the gradual spread of this fraternity, numbering about 30,000 members, through Germany, where it counts 18 lodges. Much discussion has taken place as to the weakness of the present endowment laws, and a loss in membership is acknowledged in consequence.

The Spring Ministers' Conference was held in New York on May 3. The committee on Sabbath-schools advocated the formation of an American Sabbath-School Union; but action was deferred. The committee on women's rights reported the following resolution, which was passed:

That it is the sense of this Conference that women can become active members of congregations by having a voice in its meetings and serving as members of its committees on Sabbath-schools.

At the public conference, Rev. Dr. Kohut ("Science and Judaism"), Rev. Dr. Landsberg ("Leopold Zunz"), and Rev. Dr. Gottheil, took part. In the Autumn Conference, November 22 and 23, in New York city, the committee on a home prayer-book was empowered to publish it, and a committee was appointed to amend

the existing State laws of marriage so as to prevent unprincipled persons from officiating as ministers. The subject of providing for aged and infirm rabbis was discussed, and a board was appointed (Drs. Jastrow, Kohler, and Kohut) to aid congregations desiring rabbis. Addresses were delivered by Rev. Drs. S. Adler and A. S. Bettelheim. In the public session, Rev. Dr. M. Jastrow ("Law against Law"), Rev. Dr. A. Guttmann ("Harmony the Law of Nature"), Rev. Dr. A. S. Isaacs, and Rev. L. Stern ("Hand-in-Hand"), participated. On June 30 a Sabbath-School Convention was held in Cincinnati, at which a plan for organizing Jewish Sunday-schools was presented, and a number of congregations signified their adherence. In this Western organization are interested Rev. Dr. Wise, President of the Hebrew Union College; Rev. Dr. Mielziner, of Cincinnati; Rev. H. Berkowitz, of Mobile; Rev. Dr. Hecht, of Montgomery; and others, including the young graduates of the Hebrew Union College, who have met with much success.

The death of Leopold Zunz, at an advanced age, took place on March 19, at Berlin, and memorial services were held in Europe and America. Among the more prominent names on the death-list may be mentioned Rabbi Dusnus, of Leeuwarden, Holland; Baron Popper, of Hungary; Prof. Theodore, of Owens College, Manchester, England; Rev. Dr. Kalisch, of Newark, N. J.; Dr. Gordon, Russian Hebraist, journalist, and philanthropist; Rev. James K. Gutheim, of New Orleans, La.; Rev. R. D'C. Lewin, of New York; Rabbi G. Tiktin, of Breslau, Germany; Rabbi Dr. Landau, of Dresden; Baroness James de Rothschild; Ludwig Löwe, member of the Reichsrath; Baron Carl Meyer Rothschild; L. Kompert, the novelist; Gustav Heine, youngest brother of the poet; R. Elia Esra, the Rothschild of Calcutta; Rabbi Dr. L. Adler, of Cassel; Rabbi Dr. B. Friedmann, of Mannheim, the teacher of Ferdinand Lassalle; Adolph Reichenheim, of Berlin, who left large bequests for charitable purposes without distinction of creed; J. H. R. Biesenthal and J. Brill, Hebrew scholars of distinction; the widow of Meyerbeer; Dr. Leopold von Kaulla; Baron J. Castelnuova, of

Pisa; Prosperi Padu, of Florence, physician and patriot; Ritter Nathan von Kallir, of Brody; Rabbi Schreiber, of Pesth; Rabbi Dr. A. Auerbach, of Bonn.

The beginning of a new era for Jewish learning in America was ushered in by Rev. Dr. Szold's "Hebrew Commentary on the Book of Job," and the first part of Rev. Dr. Jastrow's "Talmudic and Midrashic Dictionary." In addition, Rev. Dr. Kohut issued a collection of sermons on "Rabbinical Ethics," and Rev. Dr. Zirndorf wrote a work in German on "Jost and his Friends." The rapidly increasing interest in Semitic studies is shown by the appointments of Dr. M. Jastrow, Jr., as Professor of Arabic and Rabbinical Literature, at the University of Pennsylvania; Dr. R. Gottlieb, as lecturer of Syriac, at Columbia College; and Dr. A. S. Isaacs, as Professor of Hebrew, at the New York University. The publication of Karpeles' "Geschichte der jüdischen Literatur" is the most notable popular contribution abroad to Jewish literature.

A new rabbinical seminary was opened at Rome. Meetings were held in New York for the establishment of a Jewish theological seminary, and the institution is to be opened early in the new year. This movement is under conservative auspices, and is presided over by Rev. S. Morais, of Philadelphia. A resolute effort to educate the Jewish masses was begun in the winter by the Y. M. H. A., of New York, the Jewish ministers of the city participating in a course of lectures on the fundamentals of the Jewish religion. The Aguilar Free Library was organized in New York by the amalgamation of the libraries of the Y. M. H. A. and Hebrew Free Schools.

A movement was begun by Señor Lopez Lapuya, of Madrid, early in December, to facilitate the immigration to Spain of descendants of the exiles of 1492, as well as Jews in general who wish to become Spanish citizens. The plan has been received with great favor by prominent Israelites and the Jewish press throughout the world, and a committee of immigration has been formed.

Henry A. Isaacs became Sheriff of London. Sergeant Simon, M. P., and Philip Magnus, were knighted by Queen Victoria.

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KANSAS. State Government.—The following were the State officers during the year: Governor, John A. Martin, Republican; Lieutenant-Governor, A. P. Riddle; Secretary of State, E. B. Allen; Treasurer, Samuel T. Howe; Auditor, E. P. McCabe; Attorney-General, S. B. Bradford; Superintendent of Public Instruction, J. H. Lawhead; Insurance Commissioner, R. B. Morris; Railroad Commissioners, James Humphrey, L. L. Turner, and Almerin Gillett; Mine Inspector, John R. Braidwood; Commis-

sioner of Labor Statistics, Frank H. Betton. Supreme Court: Chief-Justice, Albert H. Horton; Associate Justices, W. A. Johnston and Daniel M. Valentine.

Growth of the State.—The Governor, in his message to the Legislature of 1887, says:

The growth of Kansas, during the past two years, has been extraordinary. The census of March 1, 1884, gave the State a population of 1,135,614; that of March 1, 1886, showed an increase to 1,406,738; and our population now exceeds 1,500,000. Since the 1st of January, 1885, fifteen new counties have been

organized. These counties had, at the date of their organization, an aggregate population of 38,841, and they polled, at the November election (three not voting), a total of 18,108 votes. They include territorial area of 14,855 square miles. Only two of the one hundred counties of the State, embracing an area of 1,860 square miles, remain to be organized. During the same period, two cities, Wichita and Kansas City, have been organized as cities of the first class, and thirteen, Cherryvale, Abilene, Eureka, Minneapolis, Anthony, El Dorado, Seneca, Weir, Great Bend, Dodge City, Larned, Hutchinson, and South Topeka, as cities of the second class. Two years ago the railway mileage of Kansas aggregated only 4,486 miles, assessed at \$28,455,907.36, and traversing seventy-three counties of the State. To day Kansas has 6,060 miles of completed railway, the assessed value of which is fully \$39,000,000. These lines traverse eighty-six of our hundred counties. In 1884 the assessed value of all property of the State was \$237,020,391; for 1886 it was \$277,575,353. We had, then, 13,011,333 acres in cultivation; last year we had 15,473,495 acres.

The year just closed has not been, in many respects, a prosperous season. The crops have been short, epidemics have brought heavy losses upon stock-raisers, the prices of all cereals and stock have ruled low, and many of our citizens are feeling the stress of the wide-spread industrial depression.

The fifteen counties organized during the past two years are the following: Comanche, February 27; Clark, May 5; Thomas, October 8; and Meade, November 4, 1885; and Hamilton, January 29; Kiowa, March 23; Cheyenne, April 1; Lane, June 3; Seward, June 17; Scott, June 29; Stevens, August 3; Gove, September 2; Sherman, September 20; Morton, November 18; and Wichita, December 24, 1886.

Finances.—During two years the receipts of the treasury (including a balance of \$754,512.07 on hand July 1, 1884) aggregated \$5,547,167.33, and the disbursements for the same period were \$4,962,894.17, leaving a balance in the treasury, June 30, 1886, of \$584,273.16. The total bonded debt of the State, on Jan. 1, 1887, was \$830,500, showing a reduction, since Jan. 1, 1885, of \$105,000. Of the debt outstanding, only \$256,000 of bonds remain in the

hands of individuals and corporations. \$574,500 being held by different State funds. The bonds and securities in the treasury on Dec. 31, 1886, aggregated \$4,678,046.62.

From July 1 to Dec. 31, 1886, the receipts of the State treasury were as follow: From taxes, \$454,074.07; from Penitentiary earnings, \$51,203.47; from Insane Asylums, \$621; from State Librarian, sales of Supreme Court Reports, \$1,344.50; from the Insurance Department, \$10,124.92; from sales of school lands, principal, \$286,503.86; from sales of school lands, interest, \$146,325.41; from sales of University lands, principal, \$5,953.76, and interest, \$1,997.94; from sales of Normal School lands, principal, \$5,856.10, and interest, \$3,994.65; from sales of Agricultural College lands, principal, \$23,371.34, and interest, \$4,495.64; from principal of county, township, and school-district bonds, \$95,229.17, and from interest on same, \$124,252.11; from sale of State bonds, \$9,105; and from miscellaneous sources, \$125—making a total of \$1,224,577.94, which, added to the balance on hand June 30, 1886, makes a total of \$1,808,851.10. The disbursements during the same six months were as follow: On warrants drawn by State Auditor, \$571,667.06; drawn by School-Fund Commissioners, \$445,639.89; by State Superintendent of Public Instruction, \$242,470.81; by Regents of Normal School, \$6,600; by Agricultural College Loan Commissioners, \$62,652; by Regents of Agricultural College, \$14,993; on payment of State bonds, \$17,000; and on payment of coupons, \$29,662.50—making a total of \$1,390,685.26. The balance in the treasury, Dec. 31, 1886, was \$418,165.84.

State Property and Taxation.—In the following table the area of the public grounds, and value of grounds, buildings, and equipment, are given in detail:

INSTITUTIONS.	Acres of land.	Value of land.	Value of buildings and equipment.	Total value of plant.
State-House, Topeka.....	10	\$250,000	\$1,350,000	\$1,600,000
Insane Asylum, Topeka.....	180	86,000	560,000	596,000
Insane Asylum, Osawatomie.....	214	7,000	350,000	357,000
Deaf and Dumb Institution, Olathe.....	177 $\frac{1}{4}$	20,000	85,000	105,000
Blind Institution, Wyandotte.....	10	25,000	54,000	75,000
State Reform School, Topeka.....	160	16,000	70,000	86,000
Soldiers' Orphans' Home, Atchison.....	160	24,000	25,000	49,000
Institution for Feeble-Minded, Winfield.....	40	2,500	25,000	27,500
State University, Lawrence.....	42	12,600	838,700	851,300
State Agricultural College, Manhattan.....	815	85,250	178,478	213,728
State Normal School, Emporia.....	20	10,000	58,400	63,400
State Penitentiary, Leavenworth.....	218	32,700	1,358,390	1,391,090
State Industrial Reformatory, Hutchinson.....	640	100,000	60,000	160,000
Totals.....	2,186 $\frac{1}{4}$	\$571,050	\$4,508,968	\$5,080,018

The percentage of taxation annually levied for State purposes, rarely large, has been steadily decreasing during the past fourteen years, until, for the present fiscal year, it is less than half that levied in 1872.

Municipal Debts and Taxation.—On this subject the Governor says: "The rapid and enormous increase of property valuations has brought no corresponding decrease in the percentages of tax levied by the municipal authorities. In

many counties and cities, indeed, the tax rates have steadily increased. Worse than all, too, the aggregate of municipal indebtedness is rapidly and enormously swelling, until it has reached proportions that should alarm every citizen who has at heart the prosperity of the State and the well-being of its people. Two years ago the municipal indebtedness of the State aggregated \$15,951,929. Of this amount the county indebtedness aggregated \$8,065,-

748.29; township, \$2,650,030.90; city, \$2,487,-436.17; and school district, \$2,748,714.50. On Jan. 1, 1887, this burden of local indebtedness had increased to \$19,397,851. But this is not the end. Since the 1st of January, 1885—a period of two years—municipal bonds aggregating in amount \$11,222,000 have been voted, but are not yet issued. If all the bonds thus voted were issued, the municipal indebtedness of Kansas would be as follows:

County.....	\$14,373,651
Township	9,415,306
City.....	3,975,484
School district.....	2,855,410
Total.....	\$30,619,851

"It is hardly probable, however, that half of the bonds now voted, but not yet issued, will ever be earned. But the aggregate of our municipal indebtedness, even if one half of the bonds voted should never be issued, will exceed \$25,000,000, and it seems to me time to put a stop, firmly and thoroughly, to this wasteful extravagance.

"It will be observed that \$12,083,018 of the bonds already issued, and \$11,146,600 of those voted but not yet issued, have been voted to aid in building railroads. This system of bond-voting to build railroads began twenty years ago, and continued for nearly a decade. Then came a period of business and industrial depression, followed by an era of attempted repudiation, the effects of which are still lingering in the courts. Three years ago another epidemic of railroad bond-voting broke out, and has since spread throughout nearly every section of the State."

Education.—The school population of the State—persons between the ages of five and twenty-one years—is now 497,785, an increase of 86,585 over 1884. The pupils enrolled number 365,239, an increase of 61,638 during the same period. The average daily attendance was 219,908, an increase of 12,569. The teachers employed in 1884 numbered 8,342; those employed in 1886 numbered 9,387. The average wages paid teachers, per month, were: males, \$42.02; females, \$33.85. There has been a steady increase in teachers' salaries, for many years. There are in Kansas 6,791 school-houses, having a total of 8,180 rooms, valued at \$6,592,757. School-buildings costing \$1,093,042 have been erected during the past two years. The receipts and expenditures for school purposes during the school year ended July 31, 1886, were: Balance in district treasuries, Aug. 1, 1885, and receipts \$4,476,791.69; total expenditures, \$3,849,017.59, leaving in hands of district treasurers, July 31, 1886, a balance of \$627,774.10.

The State University at Lawrence, the Agricultural College at Manhattan, and the Normal School at Emporia, are all prosperous, with a steadily increasing enrollment of students, and constantly improving appliances for educational work. The permanent fund of the University now aggregates \$111,210.92; that

of the Normal School, 73,298.21; and that of the Agricultural College, \$501,086.33.

In the State University during the past fiscal year 419 students were in attendance, notwithstanding the fact that several of the lower classes had been discontinued. The Legislature appropriated \$50,000 for the erection of a building to be devoted to natural history, and this building has been completed. The new department of pharmacy has been fully organized, and had, during its first year, twenty-three students enrolled.

At the State Agricultural College the new hall has been completed; forty-four acres have been added to the farm; and the value of the college property has increased, during the past two years, from \$145,857.95 to \$207,678.03. The attendance has increased from 395 to 428.

In the State Normal School during the year ending June 30, 1885, the enrollment was 605; for the next year it reached 724. The Legislature, in 1886, enacted a law "to further endow the State Normal School," by granting to it twelve sections of land, known as the salt-spring lands. These, except two quarter-sections, have been sold for an aggregate of \$78,882. The permanent school fund amounts to \$4,061,887.93.

The Penitentiary.—The necessity for a female prison and a ward for the insane is apparent. The institution is crowded beyond its capacity. On July 1, 1884, it contained 751 prisoners; July 1, 1885, this number had increased to 840; July 1, 1886, to 869; and on Jan. 1, 1887, the number was 954. There are only 700 cells in the institution.

The Penitentiary continues self-sustaining. For the year ending June 30, 1885, the earnings aggregated \$190,466.91; expenditures, \$148,201.02; excess of earnings, \$42,265.89. For the year ending June 30, 1886, the earnings aggregated \$220,785.07; expenditures, \$169,579.71; excess of earnings, \$51,205.36. Excess of earnings over expenditures during the two fiscal years, \$93,471.25. In the expenditures are counted a total of \$45,129.04 for permanent improvements, so that the earnings of the institution, during the last biennial period, exceeded its expenditures \$138,600.29. The total cost of maintaining the prisoners has been steadily reduced. For 1870 it averaged 60½ cents a day; for 1875, 52⁸/₁₀₀ cents; for 1880, 41⁸/₁₀₀ cents; and for 1886, 41¹/₂ cents.

Supreme Court.—An amendment to the Constitution, proposing an increase in the number of Supreme Court judges, was voted down at the last election, by an overwhelming majority. "The court can, however," says the Governor, "be relieved in another way, and without expense to the tax-payers. If appeals in civil cases were limited, the business of the Supreme Court might be largely decreased. I have ascertained that nearly one fourth of the cases now filed in that court involve sums of less than two hundred and fifty dollars."

The Divorce Laws.—On this subject the Gov-

ernor remarks: "Grave complaints are made, from many sources, concerning our laws relating to divorce, which, it is believed, establish such grounds for separation as inevitably tend to make the marriage contract one carelessly assumed because easily abrogated. At a single term of the district court, in one county, fourteen divorce cases, all brought within three months, were on the docket. The most common ground for these suits is 'abandonment for one year,' and, between parties who for any cause desire to obtain a divorce, collusion upon this ground is easy, and the necessary proof readily furnished. It is believed that citizens of other States are taking advantage of this loose provision of our laws, and coming here for the sole purpose of obtaining a divorce."

Militia.—The Kansas National Guard has been fully organized under the provisions of the militia law of 1885. It is composed of four regiments and one battery, comprising an effective force of 2,020 officers and men. The enrollment of volunteer soldiers of the Union army, now residing in the State, has been completed, and the names of nearly 100,000 soldiers, arranged in alphabetical order, and by States and regiments, are now recorded in the books of the Adjutant-General's office.

Coal.—The output of the mines for 1884 was 27,500,000 bushels; that for 1885 aggregated 30,001,427 bushels; and that for 1886 will probably exceed 35,000,000 bushels.

Prohibition.—The Governor refers to the subject of prohibition in the following terms:

Three general elections have been held, in Kansas, since the adoption of the prohibition amendment to the Constitution. At each of these elections the people have reaffirmed their decision against the manufacture or sale of intoxicating liquors as a beverage, by electing Legislatures pledged to the support of the amendment. At the election in November last this question was a paramount issue, and again, by an emphatic majority, the sovereign verdict of the people was pronounced against the saloon. No fair-minded citizen can, no law-respecting citizen will, refuse to respect this judgment. It is your duty, gentlemen of the Legislature, to see that laws are enacted which will give practical effect to the decision of the people on this question. I stated, in my message a year ago, that while the law of 1885 embodied some defects, its general results had been very favorable. I have seen no occasion to reverse this judgment. A great reform has certainly been accomplished in Kansas. Intemperance is steadily and surely decreasing. In thousands of homes where want and wretchedness and suffering were once familiar guests, plenty, happiness, and contentment now abide. Thousands of wives and children are better clothed and fed than they were when the saloons absorbed all the earnings of husbands and fathers. The marvelous material growth of the State during the past six years has been accompanied by an equally marvelous moral progress; and it can be fairly and truthfully asserted that in no portion of the civilized world can a million and a half of people be found who are more temperate than are the people of Kansas.

That intoxicating liquors are sold, as a beverage, anywhere within the limits of Kansas, is not because of faults in our laws touching this question. Those laws, defective as they are in some features, are ample enough in their directions, restrictions, and penalties

to punish every person who either sells or buys liquors for unlawful purposes. There is not a town, city, or neighborhood in the State in which an illegal traffic in liquors can be carried on for a single week if the local officers discharge the duties, plainly enjoined upon them by law, with zeal and fidelity. Provide the necessary laws to compel local officers to discharge their sworn duties, and to remove them when they neglect or refuse to do so, and there will be no need to make many other changes in our statutes. On the other hand, no matter what amendments are made, nor what provisions are added to the present law, they will be ineffectual so long as the municipal authorities of cities or counties can nullify or disregard them without fear of removal or punishment.

The public sentiment of Kansas is overwhelmingly against the liquor-traffic. Thousands of men who, a few years ago, opposed prohibition, or doubted whether it was the best method of dealing with the liquor-traffic, have seen and frankly acknowledge its beneficent results and its practical success. The temptations with which the open saloon allured the youth of the land to disgrace and destruction; the appetite for liquor, bred and nurtured within its walls by the treating custom; the vice, crime, poverty, suffering, and sorrow of which it is always the fruitful source—all these evil results of the open saloon have been abolished in nearly every town and city of Kansas. There is not an observing man in the State who does not know that a great reform has been accomplished in Kansas by prohibition. There is not a truthful man in the State who will not frankly acknowledge this fact, no matter what his opinions touching the policy of prohibition may have been.

Railroads.—Fully 1,250 miles of road have, in the past two years, been completed, and since Jan. 1, 1886, not less than 1,100 miles have been finished. Many of the old lines have also been generally and substantially improved. In January, 1885, thirty-one of the counties of Kansas, as then defined, had not a mile of railway within their borders. To-day all except fourteen of the one hundred counties are traversed by one or more lines of railway, and within six months at least seven additional counties will be provided with railroad facilities. There are, at present, 6,060 miles of railway in operation in the State.

The Railroad Commissioners of Kansas have been able, without friction or serious difficulty, not only to amicably adjust a very large number of controversies, but to bring about large and important reductions in freight rates. During the year ended June 30, 1883, the gross receipts, from freights, of all railroads reporting to the commissioners, amounted to \$45,135.331.64. During the year ended June 30, 1886, the freight traffic over the same roads exceeded that of 1883 fully 3,379,351 tons, or 26 per cent. This largely increased tonnage was, however, transported over the same railroads, for the year ending June 30, 1886, at a total charge of \$41,132,234.05, or \$4,003,097.59 less than the amount collected on the lesser tonnage of 1883. The reduction of freight rates effected by the commissioners, during the past three years, has been fully 26 per cent.

Political.—The Democratic State Convention met at Leavenworth on August 4, and nominated the following ticket: For Governor, Thomas Moonlight; Lieutenant Governor, S.

G. Isett; Associate Justice, W. M. Whitelaw; Secretary of State, W. F. Petillon; Attorney-General, A. S. Devenney; Auditor, W. D. Kelly (colored); Treasurer, L. P. Birchfield; Superintendent of Public Instruction, W. J. A. Montgomery.

The platform favors a board of arbitration for the settlement of differences between labor and capital; and urges that the railroad laws should prevent railroad companies "from charging the people excessive rates of freight to pay the interest on watered stock; should provide for a reasonable compensation for services rendered, and no more; and the commissioners, if any there be, should have the power to enforce their decisions in the name of the State."

The following are other planks:

That the Republican policy of special pension legislation is designed as a political machine, and is the crying evil of the hour. We demand a revision of the whole pension system and the enactment of a general law, unhampered by technicalities, so that the truly worthy survivors of the Union army, participants in the late war, or their needy heirs, may, without delay, receive pensions in some measure commensurate with their disabilities and sufferings; and we further demand an appropriation by Congress sufficient to employ such clerical force as will bring about a settlement of each case within thirty days after the proper application has been filed in the Pension Bureau.

That we demand the speedy forfeiture of all unearned land grants, and the opening up of all lands of the United States to homestead settlement; and that proper legal proceedings be instituted at once to secure title to the settlers on such forfeited lands.

That we believe in a tariff for revenue, so adjusted as to meet all the demands of the Government, and that any surplus derived therefrom be at once applied to the reduction of the national debt; and we demand a revision of the present complicated tariff laws, so that the wealth of the country and the luxuries of life may bear more evenly the burdens of taxation, and the necessities of life go free.

That we are opposed to convict-labor or pauper-labor, and demand the most stringent legislation on this subject.

That the Oklahoma country should be opened up to actual settlement, and should be free alike to all persons having legal rights to settle thereon.

That we demand an amendment of the railroad laws of Kansas so as to adjust the rates on coal to a basis that will admit of the transportation of the product of all mines of the State to all parts thereof at such rates as are reasonable and just to producers and consumers.

That we are in accord with the national Democracy in opposition to all sumptuary legislation, either State or national. That we are opposed to the principles of constitutional prohibition, and demand a resubmission of the prohibitory amendment in this State to a vote of the electors, so that the question may be finally intelligently settled, and whereby the interest of true temperance may be promoted and the individual liberty and manhood of the citizen respected and restored; and instead of constitutional or statutory prohibition we favor a well-regulated and just license system.

The Republican State Convention met at Topeka on July 7. The following is the ticket nominated: For Governor, John A. Martin; Lieutenant-Governor, A. P. Riddle; Secretary of State, E. B. Allen; Associate Justice of Supreme Court, D. M. Valentine; Treasurer, James W. Hamilton; Auditor, Timothy McCarthy; Superintendent of Public Instruction, J.

H. Lawhead; Attorney-General, S. B. Bradford. The following are the main points of the platform:

The Democratic party, having obtained control of the executive branch of the Government, and the lower house of Congress, by the deliberate disfranchisement of the colored voters of the South, and by hypocritical pretenses of civil-service reform and economical administration, is now giving the country daily reminders of its bad faith, and of its inability to legislate for the people, and to transact the departmental business with equal and exact justice to all classes. It has persistently violated the civil-service rules. It has displaced veteran Union soldiers from responsible positions and filled every department of governmental service with ex-Confederate soldiers. It has repeatedly attempted to depress the industries and embarrass the laborers of this country by its interference with the legislative protection given these great interests by the Republican party. It has sought to withhold from the gallant defenders of the Union the small pittance that a grateful people would willingly pay to the wounded and diseased heroes of the war, and has interposed presidential vetoes of acts of Congress granting pensions to a class of most meritorious soldiers, whose old age, enfeebled by wounds and disease, alone compelled them to apply to the nation for help in the hour of their misfortune. It has rewarded Fitz-John Porter for his failure to obey the orders of his superior officer, and has reversed the judgment of Lincoln, Stanton, and Garfield condemning his acts of insubordination and treachery. It has threatened and annoyed the homestead and pre-emption settlers of the West by malicious misrepresentations, by partial and prejudicial investigations, by vexations rulings and ill-considered orders, and by attempted nullification of plain acts of Congress respecting the settlement of the public lands.

We demand that system of protection known as the American system, which has been built up and fostered by the Republican party for twenty-five years, be maintained in all its integrity, so that our industries may be systematically developed, our commerce extended, labor receive its own compensation and reward, and capital find remunerative employment.

And we demand, further, that this system, under which the wealth of this country has been more than trebled in a single generation, and which affords the most fair and liberal protection to our agricultural as well as manufacturing interests, and all individuals employed in connection therewith, be also extended to our commerce by the establishment of a commercial marine to the end that we may diversify industry, find new fields for the overcrowded ranks of labor, make use of the products of the forest, mine, and mill in building our own ships and provide for the nation's defense, and vindicate its honor by training a body of men for service upon the seas, furnishing ships that can be transferred to the service of the Government in case of need, and securing the establishment of ship-yards and machinery that will enable us, as a nation, to construct, equip, and float a navy that can meet all the demands of modern naval warfare.

The people of Kansas have adopted prohibition as the settled policy of this State, and have deliberately decided that the saloon with its corrupt and demoralizing influences and associations wherein every form of vice, immorality, and crime is fostered, must go; and we are in favor of carrying into effect this verdict of the people by such amendments of the present law as practical experience has shown to be necessary, and by the election of law officers who will so firmly and faithfully enforce it as to render it impossible to sell intoxicating liquors in this State, except for the purposes specified in the prohibition amendment to the Constitution.

The Republican party of Kansas has embodied in the Constitution of the State, and in various legislative enactments:

1. Protection to the homestead and wages of the laborer.
2. A liberal exemption to the small manufacturer and dealer.
3. A mechanic's lien law, broad enough in its provisions to amply secure the payment of any demand for work and material.
4. Arbitration to adjust all differences between the employer and employee.
5. The establishment of a Bureau of Labor Statistics, so that a correct knowledge of the educational, moral, and financial condition of the laboring masses can be obtained.
6. A general incorporation law under which all associations organized by the workingmen to improve their condition and protect their rights can be perpetuated. And it is in favor of all other legislation tending to secure to the laborers their just proportion of the proceeds of their work, to protect them against the encroachments of organized capital, and to provide easy and speedy redress for all wrong suffered by them or threatened to them. And while we indorse and espouse all just demands of the laboring masses, we are unalterably opposed to the doctrines of the communist and the red flag of the anarchist.

There was also a Prohibition ticket in the field. The Republican ticket was elected. The vote for Governor was as follows: Republican, 149,615; Democratic, 115,697; Prohibition, 8,094. The vote for the other officers was as follows, the first figures being Republican, the second Democratic, and the third Prohibition: Auditor, 161,117, 92,856, and 8,366; Lieutenant-Governor, 155,353, 109,820, 8,130; Secretary of State, 156,914, 108,575, 8,205; Superintendent of Public Instruction, 156,987, 108,821, 7,759; Associate Justice, 156,437, 109,162, 8,002; Treasurer, 156,981, 108,446, 8,174; Attorney-General, 155,988, 109,237, 7,865. Seven Republican Congressmen were chosen. The Legislature consists of 37 Republicans and 3 Democrats in the Senate, and 96 Republicans, 25 Democrats, and 4 others in the House. A proposed constitutional amendment to increase the number of Supreme Court judges was defeated, there being 81,788 votes cast in the affirmative and 132,535 in the negative.

Banks.—There were 75 incorporated State banks on June 30, 1886.

Legislative Session.—A special session of the Legislature convened on the 19th of January and adjourned on the 20th of February. Among the acts passed were the following:

An act to apportion the State for Senators and Representatives.

An act to establish boards of arbitration, and defining their powers and duties.

An act to compel the recording of tax deeds.

An act to provide for the consolidation of cities.

An act authorizing counties and incorporated cities to encourage the development of the coal, natural gas, and other resources of their localities, by subscribing to the stock of companies organized for such purpose.

An act to punish misrepresentation and deception in the sale of fruit, shade, or ornamental trees, vines, shrubs, plants, bulbs, and roots.

An act to suppress and prevent the printing, selling, loaning, making, advertising, giving away, or exposing to view, or showing, or taking subscriptions for any indecent or obscene literature, prints, etchings, drawings, or papers, or any article or instrument of immoral use, and prescribing the punishment therefor.

An act to prevent hunting and shooting on the first day of the week, commonly called Sunday.

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An act in relation to State officers and agents, and defining certain crimes and providing punishment therefor.

An act to punish malicious mischief.

An act to punish pickpockets.

An act in relation to garnishments and attachments for wages in certain cases.

An act relating to the business of joint-stock fire-insurance companies organized under the laws of this State, and defining their powers and duties.

An act for the incorporation of mutual live-stock insurance companies, and defining their powers and duties.

An act concerning irrigation.

An act declaring the 30th day of May a legal holiday.

An act to authorize the establishment and maintenance of county high-schools.

An act to prevent the spread of disease among swine.

An act to prevent the selling or running at large of domestic animals or animals affected with any infections or contagious disease.

An act relating to appointment and employment of persons who served and have been honorably discharged from the Army and Navy of the United States.

An act providing for the drainage of swamps, bottom or other low lands.

KENTUCKY. State Government.—The following were the State officers during the year: Governor, J. Proctor Knott, Democrat; Lieutenant-Governor, James R. Hindman; Secretary of State, James A. McKenzie; Treasurer, James W. Yate; Auditor, Fayette Hewitt; Superintendent of Public Instruction, Joseph D. Pickett; Attorney-General, P. W. Hardin; Register of Land-Office, George M. Adams; Commissioner of Agriculture, John F. Davis; Insurance Commissioner, L. C. Norman; Railroad Commissioners, J. P. Thompson, A. R. Boone, and John D. Young. Court of Appeals: Chief-Justice, Thomas H. Hines; Associate Justices, William S. Pryor, Joseph H. Lewis, and William H. Holt.

Legislative Session.—The Legislature, which was in session at the beginning of the year, adjourned on May 18. Of nearly two thousand bills passed at this session, only about eighty are general bills. A synopsis of those measures that were signed by the Governor will be found below:

To provide for the adoption and use of trade-marks for timber-dealers on the Big Sandy and Ohio rivers, and to regulate the fees for taking up floating timbers.

To take the sense of the people of the State as to the necessity and expediency of calling a convention to revise the Constitution, and to provide for the registration of the legal voters.

To grant the consent of the State to the acquisition by the United States of certain lands bordering on the navigable streams, and on Green and Barren rivers, for the purpose of improvement.

To repeal the act providing for the propagation and protection of food-fishes.

To regulate the sale of fertilizers and to protect farmers in the purchase and use of the same. It requires that all fertilizers be analyzed at the State College.

To increase the penalty for rape (now two to six years) from two to twenty-one years.

To amend that part of the General Statutes which makes the offices of Surveyor and Deputy Clerk incompatible.

To require all life-insurance agents to pay a license.

To amend an act for the incorporation and regulation of fire, marine, health, accident, live-stock, and

all other, except life, insurance companies. It requires all agents of companies doing business in the State to pay an annual license.

For the benefit of the Branch Penitentiary at Eddyville. It appropriates \$122,000 for its completion.

To amend the act for the relief of the Penitentiary, so as to prohibit the working of convicts in the mines after the expiration of the present contracts.

To extend the time of the existence of the Superior Court four years longer, and providing that appeals may be taken from that court to the Court of Appeals only in cases where the amount involved is \$2,000 or more.

To provide for the monthly payment of teachers in the common schools.

To amend the act establishing a State Board of Health. It requires all incorporated cities, towns, and villages to establish local boards of health and make quarterly reports to the State Board.

To amend the act concerning the tax upon distilled spirits. It provides for one assessment only each year and the quarterly payment of taxes.

To make gambling a felony. It provides that any person who sets up or conducts or aids in setting up or conducting any game of cards, dice, etc., shall be guilty of a felony.

To define a lawful fence, and to secure owners of property for damages to the same by trespass by the live-stock of others.

To regulate the sale of lightning-rods. It provides that a license-fee of \$250 a year shall be paid by lightning-rod agents.

In relation to infectious and contagious diseases of cattle. It requires the State Board of Health to suppress any such disease that may appear; requires the seclusion of all affected or exposed cattle by the owners; permits the quarantine of infected premises, the destruction of affected animals, and the employment of a veterinarian, who is to be paid by the county where the disease exists.

To make a wire fence a lawful fence.

To amend the General Statutes in relation to bribery at elections. It provides that the jury shall never convict under the provisions of this act on "the testimony of a single witness, unless sustained by strong corroborating circumstances."

To amend the General Statutes so as to make it lawful for the agents of express companies to carry concealed deadly weapons while in the discharge of their official duties.

For the benefit of the Kentucky Institution for the Blind. It appropriates \$5,000 for a building for colored children and \$3,000 annually for expenses.

To amend the act for the regulation of fire, marine, health, accident, live-stock, and all other, except life, insurance companies, so that no *ad valorem* tax shall be imposed on the shares of capital stock or the invested funds of any company organized under the laws of this State.

For the benefit of the branch penitentiary at Eddyville. It authorizes the Building Commissioners to borrow money to carry on the work when it is not to be had from the treasury, and to sell surplus stone, brick, and cement to pay interest on the same.

To increase the penalty for incest (now two to six) to two to twenty-one years.

To make seduction a felony, punishable by confinement in the Penitentiary for not less than one nor more than five years.

For the benefit of public schools in cities having a population of 20,000 and over. It permits persons over the school age and under the age of forty to attend the night-schools.

To amend the General Statutes in regard to liens in favor of mechanics, laborers, and material-men, increasing the time in which steps may be taken to preserve the same from sixty days to six months.

To repeal an act entitled "An act prescribing the manner of selling the sulphate and other preparations of morphine and opium in this State and for other

purposes," approved Feb. 19, 1886, and to prescribe the manner of selling the sulphate and other preparations of morphine in this State. It provides that such poisons in future must be sold in scarlet wrappers.

To allow defendants to testify in criminal and penal cases. It allows defendants to testify; but their refusal to do so is not to be construed as evidence of their guilt.

To continue the geological survey and to fix the salary of the director. It appropriates \$10,000, out of which is to be paid the printing of the survey. The salary of the geologist is reduced from \$3,000 to \$2,000.

To amend the revenue laws. The most important provisions are those fixing the general tax at forty-seven cents on \$100; fixing the pay of assessors at four cents on each \$100 of the first \$1,000,000, and 1 $\frac{1}{2}$ cents on each additional \$100; requiring sheriffs to bid in property sold for taxes for the State; and fixing the rate of taxation on bank-stock at seventy-five cents on the \$100, and exempting 10 per cent. of their surplus.

To prevent the sale of liquors within one mile of any lock or dam, or site of the same, on the rivers of Kentucky. The bill does not apply to the sale in any incorporated town or city.

To provide against dangers from carbon and petroleum oils, and to provide for gauging of oils, naphtha, and turpentine. It provides for an inspector in each county, to be paid by the owner of the oils inspected.

To repeal so much of the Civil Code of Practice as provides for a separate general or special verdict, provided that the court in its discretion may direct the jury to find a separate general verdict.

To regulate the partition of land. It provides that where land is held under deed or will, vesting a life-estate in two or more persons, or in trust for their benefit, with remainder as to the share of each to his or her children, it shall be lawful for a court of equity on the petition of one of such life-tenants and his or her children and descendants who would then be entitled to such remainder, all persons having interests in such lands being made parties to partition such land, as to set apart to such life-tenants and children or descendants so much of said land to which they shall be entitled in severalty.

To provide that the law in regard to peddlers shall not be construed so as to apply to farmers or their agents who sell products of their own farm.

To provide that any passenger on any street-car who uses obscene language or is otherwise disorderly, or who refuses to pay his fare, shall be guilty of a misdemeanor and fined from \$5 to \$10, with costs, or be imprisoned.

To provide for erecting at the graves of certain deceased persons memorial tablets. It provides that it shall be lawful for the personal representative or heirs at law of a decedent to cause to be erected at the grave of the deceased an appropriate memorial tablet, the cost of which shall be allowed as funeral expenses on the settlement of the estate.

To regulate the exemption of personal property from execution, attachments, distress for rent and fee farms in this State. It revives the old law in relation to exemptions.

To define the responsibility of insurance companies for the acts of their agents. It provides that when any solicitor solicits policies for any insurance company he shall receive his compensation from policies secured from the company or its accredited agents, and not from the person taking out the policy.

To amend the General Statutes in relation to division fences. It requires that fences must be erected and maintained upon both sides of all railroads.

To establish a State Normal School for colored persons. It appropriates \$7,000 for a building, and \$3,000 per annum for expenses.

To amend the law regarding libel suits against newspapers. It requires that suits for libel be brought in the court where the paper is published or in which the plaintiff is a resident.

The new State Colored Normal School has been located at Frankfort.

Election.—On August 2 an election was held for county and judicial officers. Caswell Bennett, Democrat, was chosen a Justice of the Court of Appeals from the First Appellate District, without opposition. On November 2, Congressmen were chosen, the Republicans electing three and the Democrats eight.

Tobacco and Liquors.—The report of the Commissioner of Internal Revenue for the year ending June 30, 1886, gives statistics in regard to liquors and tobacco. In Kentucky the collections were large, as the following figures will show :

Second District.....	\$1,774,514 97
Fifth District.....	6,946,478 84
Sixth District (A).....	142,540 14
Sixth District (B).....	3,505,629 92
Seventh District.....	2,485,383 58
Eighth District (A).....	1,862 68
Eighth District (B).....	940,595 46

Aggregate collections..... \$15,746,940 59

The number of Kentucky cigar-manufacturers is 2,601, using 735,936 pounds of tobacco,

manufacturing 32,692,560 cigars. Number of tobacco-factories in Kentucky, 82, using 14,790,777 pounds of leaf, 48,445 pounds of scraps, 2,618,605 pounds of licorice, 2,298,285 pounds of sugar, and 177,016 pounds of other materials. Those in Kentucky who pay taxes for the manufacture of liquors consist of 59 rectifiers, 3,691 retail liquor-dealers, 227 wholesale liquor-dealers, 1 manufacturer of stills, 255 manufacturers of cigars, 1,079 dealers in leaf-tobacco, 71 manufacturers of tobacco, and 29 brewers. Total of persons taxed, 15,663. Number of distilleries registered and operated, 760; number operated in the Second District, 57; Fifth, 82; Sixth, 22; Seventh, 29; Eighth, 64. Gallons of spirits rectified in the Second District, 139,742; Fifth, 993,538; Sixth, 2,916,419; Seventh, 4,687; Eighth, 3,416. The number of cattle fed at registered grain-distilleries was 20,371. Spirits exported: Second District, 77,362 gallons; Fifth, 565,251; Sixth, 222,784; Seventh, 691,610; Eighth, 356,429; number of gallons remaining in distillery warehouses, 37,856,072 gallons.

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LAW, CONSTITUTIONAL. The important opinion rendered by the United States Supreme Court in the Virginia coupon cases is given in the "Annual Cyclopaedia" for 1885, under the title "COUPON CASES." The power of a legislature to punish witnesses for contempt was affirmed by the New York Court of Appeals in an opinion outlined in the article on "CONTEmPT or LEGISLATIVE AUTHORITY," in the same volume. For the opinion of the Ohio Supreme Court, declaring the registration law of that State unconstitutional, and the opinion of the Supreme Court of Michigan, holding that the Legislature has no authority to prescribe party qualifications for office, see "ELECTION LAWS," also in the same volume.

State Regulation of Railroads.—An important opinion on this subject was rendered by the United States Supreme Court, Jan. 4, 1886, in the case of Stowe and others composing the Railroad Commission of Mississippi against the Farmers' Loan and Trust Company. The suit was brought by this company to restrain the commission from enforcing against the Mobile and Ohio Railroad Company the provisions of the Mississippi statute, passed March 11, 1884, and entitled "An act to provide for the regulation of freight and passenger rates on railroads in this State, and to create a commission to supervise the same." The United States Circuit Court decided against the commissioners, who thereupon appealed to the Supreme Court.

In behalf of the company it was contended in the Supreme Court that the statute under which the commissioners were authorized to

act was unconstitutional, first, because it impaired the charter contract of the railroad company, and second, because it was a regulation of commerce among the States. The charter gave the directors "full power" to manage the affairs of the company by regulations "not contrary to this charter, or the laws of this State, or of the United States." It further empowered the company "from time to time to fix, regulate, and receive the toll and charges by them to be received for transportation of persons or property on their railroad."

The Supreme Court held the law to be constitutional. Chief-Judge Waite delivered the opinion. It is a settled principle, he said, that a State has power to limit the amount of charges by railroad companies, unless restrained by some contract in the charter, or unless what is done amounts to a regulation of foreign or interstate commerce. No contract was violated by the legislation in this case. The power of the directors to manage the affairs of the company was expressly limited by the proviso that it should be subject to the laws of the State. The company was not, therefore, exempted by its charter from the operation of laws enacted within the scope of legislative power for the regulation of the business in which it was authorized to engage. To the argument that by giving the company express authority to fix rates, the State had surrendered control over charges, the Court said: "We see no evidence of any such intention. Power is granted to fix reasonable charges, but what shall be deemed reasonable in law is

nowhere indicated. There is no rate specified, nor any limit set. Nothing whatever is said of the way in which the question of reasonableness is to be settled; all that is left as it was. Consequently, all the power which the State had in the matter before the charter it retained afterward. The power to charge being coupled with the condition that the charge shall be reasonable, the State is left free to act on the subject of reasonableness within the limits of its general authority as circumstances may require. The right to fix reasonable charges has been granted, but the power of declaring what shall be deemed reasonable has not been surrendered. If there had been an intention of surrendering this power, it would have been easy to say so. Not having said so, the conclusive presumption is, there was no such intention. . . . From what has thus been said, it is not to be inferred that this power of limitation or regulation is itself without limit. This power to regulate is not a power to destroy, and limitation is not the equivalent of confiscation. Under pretense of regulating fares and freights, the State can not require a railroad corporation to carry persons or property without reward; neither can it do that which in law amounts to a taking of private property for public use without just compensation, or without due process of law. What would have this effect we need not now say, because no tariff has yet been fixed by the commission, and the statute of Mississippi expressly provides 'that in all cases of trials of cases brought for a violation of any tariff of charges, as fixed by the commission, it may be shown in defense that such tariff so fixed is unjust.'

The Court then proceeded to consider the objection that the legislation was an unconstitutional interference with interstate traffic. It is true, it said, the Mobile and Ohio Railroad Company extended through several States, and was chartered by each of the States through which it ran. It is also true that Congress aided in the construction of parts of the line.

But it is none the less true that the corporation created by each State is, for all the purposes of local government, a domestic corporation, and that its railroad within the State is a matter of domestic concern. Every person, every corporation, everything within the territorial limits of a State is, while there, subject to the constitutional authority of the State government. Clearly under this rule Mississippi may govern this corporation, as it does all domestic corporations, in respect to every act and everything within the State which is the lawful subject of State government. It may, beyond all question, by the settled rule of decision in this court, regulate freights and fares for business done exclusively within the State, and it would seem to be a matter of domestic concern to prevent the company from discriminating against persons and places in Mississippi. So it may make all needful regulations of a police character for the government of the company while operating its road in that jurisdiction. In this way it may certainly require the company to fence so much of its road as lies within the State; to stop its trains at railroad-crossings; to slacken speed while running in a crowded thoroughfare; to post its tariffs and time-tables at proper

places, and other things of a kindred character affecting the comfort, the convenience, or the safety of those who are entitled to look to the State for protection against the wrongful or negligent conduct of others. This company is not relieved entirely from State regulation or State control in Mississippi simply because it has been incorporated by, and is carrying on business in, the other States through which its road runs. While in Mississippi it can be governed by Mississippi in respect to all things which have not been placed by the Constitution of the United States within the exclusive jurisdiction of Congress, that is to say, using the language of this Court in *Cardwell vs. Bridge Co.*, 113 United States Reports 210, "when the subjects on which it is exerted are national in their character, and admit and require uniformity of regulations affecting all States alike." Under this rule nothing can be done by the government of Mississippi which will operate as a burden on the interstate business of the company, or impair the usefulness of its facilities for interstate traffic. It is not enough to prevent the State from acting that the road in Mississippi is used in aid of interstate commerce. Legislation of this kind to be unconstitutional must be such as will necessarily amount to or operate as a regulation or business without the State as well as within.

The commission is in express terms prohibited by the act of March 15, 1884, from interfering with the charges of the company for the transportation of persons or property through Mississippi from one State to another. The statute makes no mention of persons or property taken up without the State and delivered within, nor of such as may be taken up within and carried without. As to this, the only limit on the power of the commissioners is the constitutional authority of the State over the subject. Precisely all that may be done, or all that may not be done, it is not easy to say in advance. The line between the exclusive power of Congress and the general powers of the State in this particular is not everywhere distinctly marked, and it is always easier to determine when a case arises whether it falls on one side or the other, than to settle in advance the boundary, so that it may be in all respects strictly accurate. As yet the commissioners have done nothing. There is, certainly, much they may do in regulating charges within the State, which will not be in conflict with the Constitution of the United States. It is to be presumed they will always act within the limits of their constitutional authority. It will be time enough to consider what may be done to prevent it when they attempt to go beyond.

The Court further held that general statutes regulating the use of railroads in a State, or fixing maximum rates of charges for transportation, when not forbidden by charter contracts, do not necessarily deprive the corporation owning or operating a railroad within the State of its property without due process of law, nor deny the corporation the equal protection of the laws within the meaning of the fourteenth amendment of the Federal Constitution.

On November 23, 1885, the Court rendered a decision that a State legislature has the power to require railroad corporations to fence their tracks, and to subject any company to double damages for injury done to animals through the company's failure to comply with the requirements of the law. The case arose under a statute of Missouri, which requires every railroad corporation in that State to—
erect and maintain lawful fences on the sides of the road where the same passes through, along, or adjoin-

ing inclosed or cultivated fields or uninclosed lands, with openings and gates therein, to be hung, and have latches or hooks, so that they may be easily opened and shut at all necessary farm-crossings of the road for the use of the proprietors or owners of the lands adjoining such railroad, and also to construct and maintain cattle-guards, where fences are required, sufficient to prevent horses, cattle, mules, and all other animals from getting on the railroad.

The statute further provides that—

until fences, openings, gates and farm-crossings and cattle-guards, as aforesaid, shall be made and maintained, such corporation shall be liable in double the amount of all damages which shall be done by its agents, engines, or cars to horses, cattle, mules, or other animals on said road, or by reason of any horses, cattle, mules, or other animals escaping from, or coming upon, said lands, fields, or inclosures, occasioned in either case by the failure to construct or maintain such fences or cattle-guards. After such fences, gates, farm-crossings, and cattle-guards shall be duly made and maintained, said corporation shall not be liable for any such damages, unless negligently or willfully done.

In a suit brought against it, the Missouri Pacific Railway Company claimed that this statute was repugnant to several provisions of the State Constitution, and that it was in violation of the fourteenth amendment to the Federal Constitution, in that it deprived a railroad corporation of its property, so far as it exceeds the value of the stock killed or injured, without due process of law, and in that it denies to such corporation the equal protection of the laws. In an opinion prepared by Justice Field the United States Supreme Court held that the questions arising under the Constitution of Missouri were settled by the decision of the Supreme Court of that State sustaining the legislation, and that only the questions arising under the Federal Constitution were open to review by the Federal court. The Court decided that the statute does not deprive a railroad corporation of its property without due process of law, and does not deny to it the equal protection of the laws. "If the laws enacted by a State," says Justice Field, "be within the legitimate sphere of legislative power, and their enforcement be attended with the observance of those general rules which our system of jurisprudence prescribes for the security of private rights, the harshness, injustice, and oppressive character of such laws will not invalidate them as affecting life, liberty, or property without due process of law. Within the present century the punishment of death or long imprisonment was inflicted in England for many offenses which are not now visited with any severer penalty than a fine or a short confinement, yet no one has ever pretended that life or liberty was taken thereby without due process of law. And it often happens that heavy and oppressive burdens are imposed by statute upon residents of cities and counties, not merely to meet the necessary expenses of Government, but for buildings or improvements of doubtful advantage, which sometimes, as in changing the grade of streets, seriously depreciate the value of property. Yet, if no

rule of justice is violated in the provisions for the enforcement of such a statute, its operation, in lessening the value of the property affected, does not bring it under the objection of depriving a person of property without due process of law. It is hardly necessary to say that the hardship, impolicy, or injustice of State laws is not necessarily an objection to their constitutional validity, and that the remedy for evils of that character is to be sought from State legislatures."

On the point of double damages the Court said:

It is the duty of every State to provide, in the administration of justice, for the redress of private wrongs; yet the damages which should be awarded to the injured party are not always readily ascertainable. They are in many cases a matter of conjectural estimate, in relation to which there may be many differences of opinion. The general rule undoubtedly is that they should be precisely commensurate with the injury. Yet in England and in this country they have been allowed in excess of compensation, whenever malice, gross neglect, or oppression has caused or accompanied the commission of the injury complained of. "The law," says Sedgwick, in his excellent treatise on "Damages," permits the jury to give what it terms punitory, vindictive, or exemplary damages; in other words, blends together the interests of society and of the aggrieved individual, and gives damages, not only to recompense the sufferer, but to punish the offender."

For injuries resulting from a neglect of duties, in the discharge of which the public is interested, juries are permitted to assess exemplary damages. These may perhaps be considered as falling under the head of cases of gross negligence, for any neglect of duties imposed for the protection of life or property is culpable and deserves punishment. The law of Missouri under consideration, imposes a duty in the performance of which the public is largely interested. Authority for exacting it is found in the general police power of the State to provide against accidents to life and property in any business or employment, whether under the charge of private persons or of corporations. In few instances could the power be more wisely or beneficially exercised than in compelling railroad corporations to inclose their roads with fences, having gates at crossings and cattle-guards. The speed and momentum of the locomotive render such protection against accident in thickly settled portions of the country absolutely essential. The omission to erect and maintain such fences and cattle-guards in the face of the law would justly be deemed gross negligence; and if, in such cases, where injuries to property are committed, something beyond compensatory damages may be awarded to the owner by way of punishment for the company's negligence, the Legislature may fix the amount or prescribe the limit within which the jury may exercise their discretion.

The additional damages being by way of punishment, it is clear that the amount may be thus fixed; and it is not a valid objection that the sufferer instead of the State receives them. That is a matter on which the company has nothing to say. And there can be no rational grounds for contending that the statute deprives it of property without due process of law. The statute only fixes the amount of the penalty in damages proportionate to the injury inflicted. In actions for the injury the company is afforded every facility for presenting its defense. The power of the State to impose fines and penalties for a violation of its statutory requirements is coeval with government; and the mode in which they shall be enforced, whether at the suit of a private party, or at the suit of the public, and what disposition shall be made of the amounts collected, are merely matters of legislative discretion.

The statutes of nearly every State of the Union provide for the increase of damages where the injury complained of results from the neglect of duties imposed for the better security of life and property, and makes the increase in many cases double, in some cases treble, and even quadruple the actual damages. And experience favors this legislation as the most efficient mode of preventing, with the least inconvenience, the commission of injuries. The decisions of the highest courts have affirmed the validity of such legislation. The injury actually received is often so small that in many cases no effort would be made by the sufferer to obtain redress, if the private interest were not supported by the imposition of punitive damages.

Equally untenable, the Court concluded, was the objection that the statute of Missouri violates the clause of the fourteenth amendment which prohibits a State to deny to any person within its jurisdiction the equal protection of the laws. "The statute makes no discrimination against any railroad company in its requirements."

State Grants to Gas and Water Companies.—In the case of the New Orleans Gas-Light Company against the Louisiana Light and Heat Producing Company, the Supreme Court rendered on Dec. 7, 1885, an opinion as to the law governing State grants to gas companies. Prior to 1879 the Louisiana Legislature granted to the New Orleans Gas-Light Company the exclusive privilege of supplying that city with gas-light for a specified term of years. In 1879 a provision was embodied in the Constitution that "the monopoly features in the charter of any corporation now existing in this State, save such as may be contained in the charter of railroad companies, are hereby abolished." There was a proviso preserving rights, claims, and contracts then existing. After the adoption of this constitutional provision, the Louisiana Light and Heat Company was organized by authority of the State, and New Orleans, to furnish gas in that city. The New Orleans Gas-Light Company claimed that this was a violation of the exclusive privilege granted to it. The United States Supreme Court sustained the claim. It held that the charter granted to the plaintiff was a contract protected by that clause of the Federal Constitution which forbids a State to impair the obligations of a contract; that it could not be revoked or violated either by the Legislature or by a constitutional provision adopted after the contract was made.

It was contended that supplying a city with gas-light was a matter relating to the public comfort and in a sense to the public health and safety, and hence fell within the police power, which no State could bargain away; that it was a matter in which one legislature could not restrict the power of a subsequent legislature; and therefore that the charter granted to the first company was not an irrevocable contract. After citing cases in which irrevocable contracts had been made in the exercise of the police power, Justice Harlan, who delivered the opinion of the Court, said: "If the State can, by contract, restrict

the exercise of her power to construct and maintain highways, bridges, and ferries, by granting to a particular corporation the exclusive right to construct and operate a railroad within certain lines and between given points, or to maintain a bridge or operate a ferry over one of her navigable streams within designated limits; if she may restrict the exercise of the power of taxation, by granting exemption from taxation to particular individuals and corporations; it is difficult to perceive upon what ground we can deny her authority—when not forbidden by her own organic law—in consideration of money to be expended and important services to be rendered for the promotion of the public comfort, the public health, or the public safety, to grant a franchise, to be exercised exclusively by those who thus do for the public what the State might undertake to perform either herself or by subordinate municipal agencies."

The Court then proceeded to review those cases in which it had affirmed the principle that one legislature can not barter away the police power, nor so limit the discretion of its successors that they may not enact such laws as are necessary to protect the public health or the public morals. "That principle, it may be observed, was announced with reference to particular kinds of private business which, in whatever manner conducted, were detrimental to the public health or the public morals. It is fairly the result of those cases, that statutory authority, given by the State under her police power, to corporations or individuals to engage in a particular private business attended by such results, while it protects them for the time against public prosecution, does not constitute a contract, preventing the withdrawal of such authority, or the granting of it to others." This principle has been applied in the case of slaughtering animals, manufacturing fertilizers, making beer, and carrying on lotteries. The charters granted to corporations to engage exclusively in these kinds of business were held revocable at the will of the Legislature. "The present case," the Court said, "involves no such considerations. For, as we have seen, the manufacture of gas, and its distribution for public and private use by means of pipes laid, under legislative authority, in the streets and ways of a city, is not an ordinary business in which every one may engage, but is a franchise belonging to the Government, to be granted, for the accomplishment of public objects, to whomsoever, and upon what terms, it pleases. It is a business of a public nature, and meets a public necessity for which the State may make provision. It is one which, so far from affecting the public injuriously, has become one of the most important agencies of civilization for the promotion of the public convenience and the public safety."

With reference to the contract in this case, it may be said that it is not, in any legal sense, to the preju-

dice of the public health or the public safety. It is none the less a contract because the manufacture and distribution of gas, when not subjected to proper supervision, may possibly work injury to the public; for the grant of exclusive privileges to the plaintiff does not restrict the power of the State, or of the municipal government of New Orleans acting under authority for that purpose, to establish and enforce regulations, not inconsistent with the essential rights granted by plaintiff's charter necessary for the protection of the public against injury, whether arising from the want of due care in the conduct of its business, or from the improper use of the streets in laying gas-pipes, or from the failure of the grantee to furnish gas of the required quality and amount. The constitutional prohibition upon State laws impairing the obligation of contracts does not restrict the power of the State, to protect the public health, the public morals, or the public safety, as the one or the other may be involved in the execution of such contracts. Rights and privileges arising from contracts with a State are subject to regulations for the protection of the public health, the public morals, and the public safety, in the same sense and to the same extent as are all contracts and all property, whether owned by natural persons or corporations.

Whatever, therefore, in the manufacture or distribution of gas in the city of New Orleans proves to be injurious to the public health, the public comfort, or the public safety, may, notwithstanding the exclusive grant to plaintiff, be prohibited by legislation, or by municipal ordinance passed under legislative authority. It can not be said with propriety that to sustain that grant is to obstruct the State in the exercise of her power to provide for the public protection, health, and safety. The article in the State Constitution of 1879 in relation to monopolies is not, in any legal sense, an exercise of the police power for the preservation of the public health, or the promotion of the public safety, for the exclusiveness of a grant has no relation whatever to the public health or to the public safety. These considerations depend upon the nature of the business or duty to which the grant relates, and not at all upon the inquiry whether a franchise is exercised by one rather than by many. The monopoly clause only evinces a purpose to reverse the policy previously pursued of granting to private corporations franchises accompanied by exclusive privileges, as a means of accomplishing public objects. That change of policy, although manifested by constitutional enactment, can not affect contracts which, when entered into, were within the power of the State to make, and which, consequently, were protected against impairment, in respect of their obligation, by the Constitution of the United States. A State can no more impair the obligation of a contract by her organic law than by legislative enactment, for her Constitution is a law within the meaning of the contract clause of the national Constitution.

The principles affirmed in this case were held, in opinions rendered at the same time, to govern in the case of the Louisville Gas Company *vs.* the Citizens' Gas-Light Company, and in the case of the New Orleans Water-Works Company *vs.* Robert C. Rivers. The charter of the plaintiff in the latter case granted to it the exclusive privilege of supplying New Orleans with water drawn from the Mississippi through pipes laid in the streets. The defendant was the lessee of the St. Charles Hotel, and the Court held that he had no right, even with municipal authority, to lay pipes in the public thoroughfares for the purpose of supplying his house with water from the Mississippi, as this was a privilege secured exclusively to the New Orleans Water-

Works Company. After remarking that there was no difference in principle between this case and the gas case, the Court said:

The right to dig up and use the streets and alleys of New Orleans for the purpose of placing pipes and mains to supply the city and its inhabitants with water is a franchise belonging to the State, which she could grant to such persons or corporations and upon such terms as she deemed best for the public interest. And as the object to be attained was a public one, for which the State could make provision by legislative enactment, the grant of the franchise could be accompanied with such exclusive privileges to the grantee, in respect of the subject of the grant, as in the judgment of the legislative department would best promote the public health and the public comfort, or the protection of public and private property. Such was the nature of the grant to plaintiff, which, not being at the time prohibited by the Constitution of the State, was a contract, the obligation of which can not be impaired by subsequent legislation, or by a change in her organic law. It is as much a contract, within the meaning of the Constitution of the United States, as a grant to a private corporation for a valuable consideration, or in consideration of public services to be rendered by it, of the exclusive right to construct and maintain a railroad within certain lines and between given points, or a bridge over a navigable stream within a prescribed distance above and below a designated point.

It is idle to insist that this contract was prejudicial either to the public health or to the public safety, as might, perhaps, be said to be the case if the State, after making it, was prevented from exercising any control whatever over the matter of supplying the city and its inhabitants with water. But, notwithstanding the exclusive privileges granted to the plaintiff, the power remains with the State, or with the municipal government of New Orleans, acting under legislative authority, to make such regulations as will secure to the public the uninterrupted use of the streets, as well as prevent the distribution of water unfit for use, and provide for such a continuous supply, in quantity, as protection to property, public and private, may require.

The contract with the Water-Works Company does not interfere with, but expressly reserves the riparian rights of any one "contiguous to the river." To that class the appellee does not belong; for his hotel is distant many blocks from the Mississippi River, and others own and occupy the intervening property. Nor does the contract assume to interfere with the right of any person or corporation, even when not contiguous to that stream, to supply their places of business or residences with water therefrom, obtained otherwise than by pipes, mains, or conduits laid in the public ways of the city.

Constitutionality of State Militia Laws.—The power of the several States to enact militia laws was upheld by the Supreme Court in an opinion, handed down Jan. 4, 1886, in the case of *Presser vs. Illinois*. The military code of that State declares that "it shall not be lawful for any body of men whatever, other than the regular organized volunteer militia of this State, and the troops of the United States, to associate themselves together as a military company or organization, or to drill or parade with arms in any city or town of this State without the license of the Governor thereof, which license may at any time be revoked." An exception, under specified regulations, is made in favor of students in schools "where military science is a part of the course of instruction." The next section provides that

"whoever offends against the provisions of the preceding section, or belongs to or parades with any such unauthorized body of men with arms, shall be punished by a fine not exceeding the sum of ten dollars, or by imprisonment in the common jail for a term not exceeding six months, or both."

Under this law Presser was convicted and fined for publicly parading with the Lehr- und Wehr-Verein, an organization formed under the laws of the State, "for the purpose of improving the mental and bodily condition of its members, so as to qualify them for the duties of citizens of a republic." The company was armed with rifles, and Presser with a cavalry-sword. It paraded without the license of the Governor. Presser's counsel contended that the law under which he had been convicted was unconstitutional, because its enactment was the exercise of a power by the Legislature of Illinois forbidden to the States by the following provisions of the Constitution of the United States:

Art. I, sec. 8. The Congress shall have power . . . to raise and support armies; . . . to provide for calling forth the militia to execute the laws of the Union, suppress insurrections, and repel invasions; to provide for organizing, arming, and disciplining the militia, and for governing such part of them as may be employed in the service of the United States, reserving to the States, respectively, the appointment of the officers, and the authority of training the militia, according to the discipline prescribed by Congress; to make all laws which shall be necessary and proper for carrying into execution the foregoing powers, etc.

Art. I, sec. 10. No State shall, without the consent of Congress, keep troops . . . in time of peace.

Art. II of amendments. A well-regulated militia being necessary to the security of a free state, the right of the people to keep and bear arms shall not be infringed.

In support of this view, the militia acts of Congress were cited, and it was claimed that the power of organizing, arming, and disciplining the militia being confided by the Constitution to Congress, when that body acts on the subject by passing a law to carry into effect the constitutional provision, such action excludes the power of legislation by the State on the same subject. It was argued that the entire military code of Illinois was in conflict with the Federal Constitution and the law of Congress.

The Supreme Court did not deem it necessary to inquire into the validity of the entire code. It confined its decision to the two sections under which the accused had been convicted, and held them valid. "There is no such connection," said the Court, "between the sections which prohibit any body of men, other than the organized militia of the State and the troops of the United States, from associating as a military company and drilling with arms in any city or town of the State, and the sections which provide for the enrollment and organization of the State militia, as makes it impossible to declare one without declaring both invalid." This view disposed of

the objection that the legislation was contrary to that provision of the Constitution which empowers Congress to raise and support armies, and to provide for calling out, organizing, arming, and disciplining the militia, and also the provision that no State shall, without the consent of Congress, keep troops in time of peace.

Proceeding to consider whether the sections making military parades criminal, except as allowed by the code, were contrary to that clause of the Federal Constitution which declares that "a well-regulated militia being necessary to the security of a free state, the right of the people to keep and bear arms shall not be infringed," Justice Woods said:

We think it clear that the sections under consideration, which only forbid bodies of men to associate together as military organizations, or to drill or parade with arms in cities and towns unless authorized by law, do not infringe the right of the people to keep and bear arms. But a conclusive answer to the contention that this amendment prohibits the legislation in question lies in the fact that the amendment is a limitation only upon the power of Congress and the national Government, and not upon that of the States. It was so held by this Court in the case of *United States vs. Cruikshank*, 92 United States Reports 542, in which the Chief-Justice, in delivering the judgment of the Court, said that the right of the people to keep and bear arms "is not a right granted by the Constitution. Neither is it in any manner dependent upon that instrument. The second amendment declares that it shall not be infringed, but this, as has been seen, means no more than that it shall not be infringed by Congress. This is one of the amendments that have no other effect than to restrict the powers of the national Government, leaving the people to look for their protection against any violation by their fellow-citizens of the rights it recognizes to what is called in *The City of New York vs. Miln*, 11 Peters' Reports 139, the 'powers which relate to merely municipal legislation, or what was perhaps more properly called internal police,' 'not surrendered or restrained' by the Constitution of the United States."

It is undoubtedly true that all citizens capable of bearing arms constitute the reserved military force or reserve militia of the United States as well as of the States, and, in view of this prerogative of the general Government, as well as of its general powers, the States can not, even laying the constitutional provision in question out of view, prohibit the people from keeping and bearing arms, so as to deprive the United States of their rightful resource for maintaining the public security, and disable the people from performing their duty to the general Government. But, as already stated, we think it clear that the sections under consideration do not have this effect.

The opinion further holds that the sections of the code under consideration are not repugnant to the clause of the fourteenth amendment that "no State shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States." The Court finally says: "It can not be successfully questioned that the State governments, unless restrained by their own constitutions, have the power to regulate or prohibit associations and meetings of the people, except in the case of peaceable assemblies to perform the duties or exercise the privileges of citizens of the United States; and have also

the power to control and regulate the organization, drilling, and parading of military bodies and associations, except when such bodies or associations are authorized by the militia laws of the United States. The exercise of this power by the States is necessary to the public peace, safety, and good order. To deny the power would be to deny the right of the State to disperse assemblages organized for sedition and treason, and the right to suppress armed mobs bent on riot and rapine."

State Legislation against Oleomargarine. — An opinion, which was widely published and commented upon during 1885, was that of the New York Court of Appeals in the case of the people *vs.* Marx, in which the Court held that the Legislature had no power to prohibit the manufacture or sale of oleomargarine. The law that was declared unconstitutional in this opinion was that which is contained in section 6 of the "act to prevent deception in sales of dairy products," passed by the Legislature in 1884. This section was as follows :

No person shall manufacture out of any oleaginous substance, or any compound of the same other than that produced from unadulterated milk, or of cream from the same, any article designed to take the place of butter or cheese produced from pure, unadulterated milk or cream of the same, or shall sell, or offer to sell, the same as an article of food. This provision shall not apply to pure skim milk.

Whoever violates the provisions of this section shall be guilty of a misdemeanor, and be punished by a fine of not less than one hundred nor more than five hundred dollars, or not less than six months' or more than one year's imprisonment, or by both such fine and imprisonment, for the first offense, and by imprisonment for one year for each subsequent offense.

The Court of Appeals admitted that it is within the power of the Legislature to prohibit the sale of fraudulent imitations of butter intended to deceive the public. It also conceded to the Legislature the power to regulate the sale of oleomargarine by requiring it to be stamped as such, and by other reasonable regulations to prevent its deceptive sale as butter. But, said the Court, the law under consideration is not one of this kind. "The prohibition is not of the manufacture or sale of an article designed as an imitation of dairy butter, or intended to be passed off as such, but of any article designed to take the place of dairy butter. The artificial product might be green, red, or white, instead of yellow, and totally dissimilar in appearance to ordinary butter, yet it might be designed as a substitute for butter, and, if so, would fall within the prohibition of the statute. Simulation is not the act prohibited." The enactment was not aimed against fraud and deception but was intended "to take a further and bolder step, by absolutely prohibiting the manufacture or sale of any article which could be used as a substitute for it, however openly and fairly the character of the substitute might be avowed and published,

to drive the substituted article from the market and protect those engaged in the manufacture of dairy products against the competition of cheaper substances, capable of being applied to the same uses as articles of food." It absolutely prohibits and was intended to suppress the manufacture and sale of oleomargarine. The question, continued the Court, is whether the Legislature has the power to pass a law "the sole object of which was conceded to be to protect the dairy industry in this State against the substitution of a cheaper article, made from cheaper materials"; whether it has the power to prohibit and suppress the manufacture and sale of what the evidence shows to be a harmless food-product. The limitations upon legislative power are necessarily very general in their terms, but at the same time very comprehensive. The Constitution of the State provides (Art. I, § 1) that no member of this State shall be disfranchised or deprived of any of the rights and privileges secured to any citizens thereof, unless by the law of the land or the judgment of his peers. Section 6 of Article I provides that no person shall be deprived of life, liberty, or property, without due process of law; and the fourteenth amendment to the Constitution of the United States provides that "no State shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States, nor shall any State deprive any person of life, liberty, or property, without due process of law, nor deny to any person within its jurisdiction the equal protection of the laws." After citing these provisions, the Court proceeded as follows :

These constitutional safeguards have been so thoroughly discussed in recent cases that it would be superfluous to do more than refer to the conclusions which have been reached bearing upon the question now under consideration. Among these no proposition is more firmly settled than that it is one of the fundamental rights and privileges of every American citizen to adopt and follow such lawful industrial pursuits, not injurious to the community, as he may see fit. The term "liberty," as protected by the Constitution, is not cramped into a mere freedom from physical restraint of the person of the citizen, as by incarceration, but it is deemed to embrace the right of man to be free in the enjoyment of the faculties with which he has been endowed by his Creator, subject only to such restraints as are necessary for the common welfare.

In the language of Andrews, J., in Bertholf *vs.* O'Reilly, 74 New York Reports 515, the right to liberty embraces the right of man to "exercise his faculties and to follow a lawful vocation for the support of life"; and as expressed by Earl, J., in *re Jacobs*, 98 New York Reports : "One may be deprived of his liberty, and his constitutional right thereto violated, without the actual restraint of his person. Liberty, in its broad sense, as understood in this country, means the right not only of freedom from servitude, imprisonment, or restraint, but the right of one to use his faculties in all lawful ways, to live and work where he will, to earn his livelihood in any lawful calling, and to pursue any lawful trade or vocation."

Who will have the temerity to say that these constitutional principles are not violated by an enactment which absolutely prohibits an important branch of industry for the sole reason that it competes with

another, and may reduce the price of an article of food for the human race?

Measures of this kind are dangerous, even to their promoters. If the argument of the respondents in support of the absolute power of the Legislature to prohibit one branch of industry for the purpose of protecting another with which it competes can be sustained, why could not the oleomargarine manufacturers, should they obtain sufficient power to influence or control the legislative councils, prohibit the manufacture or sale of dairy products? Would arguments then be found wanting to demonstrate the invalidity under the Constitution of such an act? The principle is the same in both cases. The numbers engaged upon each side of the controversy can not influence the question here. Equal rights to all are what are intended to be secured by the establishment of constitutional limits to legislative power, and impartial tribunals to enforce them.

Illustrations might be indefinitely multiplied of the evils which would result from legislation which should exclude one class of citizens from industries, lawful in other respects, in order to protect another class against competition. We can not doubt that such legislation is violative of the letter as well as of the spirit of the constitutional provisions before referred to, nor that such is the character of the enactment under which the appellant was convicted.

The opinion of the Court was written by Judge Rapallo; all the other judges concurred in it. The Jacobs case, cited above, was that in which this same court declared the tenement-house cigar law unconstitutional. (For the opinion in that case, see the "Annual Cyclopedia" for 1884, page 431.)

Constitutionality of State Civil-Service Law.—In February, 1885, the Massachusetts House of Representatives asked the Supreme Court of that State for its opinion on the question whether the civil-service law passed by the Legislature in 1884 was constitutional. The act provided for the appointment of commissioners to make rules for the selection of persons to fill appointive State and municipal offices. The rules were subject to the approval of the Governor and Council. They were required to be "not inconsistent with existing laws or with the provisions of this act." The commissioners were authorized to make separate rules for the city of Boston, and to supervise the administration of these and all other rules made by them.

The Court gave an opinion sustaining the act. It pointed out that the State Constitution, in the fourth article of the first chapter of "The Frame of Government," confers upon the Legislature full power and authority to make all manner of wholesome and reasonable laws not repugnant to its provisions, to provide for the naming and settling of all civil officers not provided for in the Constitution, and to set forth the duties, powers, and limits of such officers. In the exercise of this power the Legislature has the right to prescribe the qualifications of all officers and servants of the public not provided for in the Constitution. "From the nature of the case, the duty of determining and ascertaining the qualifications of such officers and servants can not be performed directly by the Legislature, but

must be delegated to some officers or agents. It has been the constant and necessary practice of the Legislature to confer the power of appointing such subordinate officers and servants upon some superior officers of the State, or upon the authorities of the cities or towns, leaving the question of the qualifications of the persons to be appointed entirely to the discretion of the appointing power. The Legislature has the right to provide for the appointment of civil-service commissioners, and to delegate to them the power to make rules, not inconsistent with existing laws, to guide and control their discretion and the discretion of the officers of the State or of the cities in whom the appointing power is vested. This is not a delegation of the power to enact laws; it is merely a delegation of administrative powers and duties, and there is no provision of the Constitution which prevents the Legislature from enacting that such rules, when duly made, shall be binding upon the officers and citizens to whom they apply, and that they may be enforced by suitable penalties.

"The provision of the fourteenth section of the statute that the rules 'may be given a general or a limited application,' is not open to any constitutional objection. The power of the Legislature to make or to authorize local laws for the administration of local affairs is beyond question. It has the right to make local laws to meet the peculiar exigencies of any part of the community. The qualifications required to fill an office in one place may be different from those required for a similar office in other places, and different rules of examination may be required. We have no doubt that the Legislature, or the commissioners acting under its authority, can make valid rules for the city of Boston different from those which are found to be reasonable and wise in other localities."

LIBRARY ECONOMY AND STATISTICS. Previous to the publication by the Bureau of Education at Washington, in 1876, of the special report on "Public Libraries in the United States, their History, Condition, and Management," comparatively little information about these institutions was accessible. Beginning with 1870 the annual reports of the bureau contained such statistics as could be gathered from the libraries of the educational institutions coming within the scope of its regular work, and also from a few public libraries; as the returns from the latter increased in number, and the statistics became more complete, a widely extended interest in the subject became manifest from the numerous requests received by the bureau for "advice and information on the subject of library economy and administration." The report for 1871 contained a list of 180 public libraries; that for 1872 a list of 1,680 libraries of 1,000 volumes or over, each. The unexampled increase in the number of new libraries established, and

the desire to present a centennial report on the development and growth of the library interest, made a special and systematic inquiry a necessity, and it was also thought best "that the result should be accompanied by the suggestions and conclusions of librarians and others, whose ability and experience enable them to speak with authority on library subjects."

The special report named shows the thoroughness and completeness with which this inquiry was made. Within the twelve hundred and more pages of the first part were given not only the history, extent, and condition of the several classes of public libraries in the United States, but there also were formulated for the first time the principles of the new science of library economy, these in the second part taking the definite form of Mr. C. A. Cutter's "Rules for making a Dictionary Catalogue," which has become the standard, and is the only complete authority in this department of literary work.

This special report supplied to all the librarians of the country a text-book of methods and appliances for library management and administration, in which some of the most eminent of their number gave the results of their experience and best thought, and it also revealed to most of them the possibilities of making their profession second to none in its educating power upon the people. The following are some of the titles of papers on library economy given in the first part: "Library Buildings" and "Library Memoranda," by Justin Winsor; "The Organization and Management of Public Libraries," by William F. Poole; "Library Catalogues," by C. A. Cutter; "Catalogues and Cataloguing," by Melvil Dewey, S. B. Noyes, Jacob Schwartz, and J. J. Bailey; "Library Bibliography," "Works of Reference for Libraries," "Binding and Preservation of Books," and "Periodical Literature and Society Publications," by A. R. Spofford; "College Library Administration" and "Titles of Books," by Prof. O. H. Robinson; and "Library Reports and Statistics," by the editors, S. R. Warren and S. N. Clark, who also wrote on "College Libraries and Free Town Libraries." W. I. Fletcher contributed papers on "Public Libraries in Manufacturing Communities" and "Public Libraries and the Young"; and Frederick B. Perkins, "How to make Town Libraries successful."

A convention of librarians, probably the first ever held in the world, assembled in New York city in September, 1853, at which eighty librarians and others interested in bibliography were present. It was presided over by Prof. C. C. Jewett, of the Smithsonian Institution, and according to Dr. William F. Poole, who was one of its members, it "made a lasting impression on the minds of all the librarians who were present, and must be regarded as an era in American bibliography. . . . It aroused

a spirit of inquiry and search after better methods." At the close of its sessions it was "*Resolved*, That this convention be regarded as preliminary to the formation of a permanent Librarians' Association." A committee, with Prof. Jewett as chairman, was appointed to draft a constitution and by-laws, and to present them at the next meeting of the convention, to be held at Washington City. But that convention never reassembled, and it was twenty-three years afterward, at a conference of librarians held in Philadelphia October 4-6, 1876, that the American Library Association was organized, having for its object "exchanging views, reaching conclusions, and inducing co-operation in all departments of bibliothecal science and economy."

The "Library Journal," the first number of which appeared in September of the same year, was made the official organ of the Association, and, in addition to its regular contents, the eleven volumes already published contain one hundred and twenty-one papers on topics relating to library economy, read at the eight meetings of the Association which have been held, together with full reports of the proceedings and discussions at these meetings, filling in all some 827 pages. These volumes of the "Library Journal" constitute a body of bibliothecal literature unsurpassed in value and extent, and "accepted as the highest authority in this country as well as in England and on the Continent." Here may be found practical and suggestive discussions on the construction of library-buildings, on the classification of books, on cataloguing with condensed rules for the same, reports on library aids, on reading for the young, on libraries and schools, on fiction in libraries, on library legislation, on methods of co-operation (one result being the publication of Poole's "Index" and its current continuation), and all the details of the internal administration of a library.

The publication of the proceedings of the Philadelphia Conference of Librarians in 1876 attracted the attention of English librarians, and in 1877 a number of American librarians, by invitation, attended the International Conference of Librarians in London, at which the Library Association of the United Kingdom was founded, modeled after the American Association. Similar associations in Germany and Italy have also been established. A Western Library Association was formed, Nov. 22, 1881; and on June 18, 1885, the New York Library Club was organized, "by consultation and co-operation to increase the usefulness and promote the interests of the libraries of New York and vicinity." The opening of the proposed School of Library Economy at Columbia College, New York city, in January, 1887, will mark another important era in the development of the new science.

Library Economy.—In general terms we may say that there are four grand divisions of this subject: 1. Library-buildings; 2. Selection of

books; 3. Classification of books; 4. Catalogues.

1. *Library-Buildings*.—The discussions of the past ten years on the places where and the manner in which books should be housed, having in view their preservation for the longest period, and at the same time their accessibility for immediate use when wanted, have resulted in some radical changes from the old ideas that have so long obtained regarding library architecture. All are agreed that ample, commodious, well-lighted and well-ventilated reading-rooms should be provided for the convenience of readers; but all are not yet agreed as to the best disposition of the books themselves. The majority of librarians, however, favor the stack system, by which the largest number of volumes can be shelved in the least room and also be easily accessible. The old style of architecture is illustrated by the halls of the Astor Library, New York city, and Bates Hall, of the Boston Public Library. In these the books are shelved on the walls and in alcoves projecting from the sides of stately halls, with galleries towering to the height of two and three stories above the main floor, arranged for architectural effect, but with very great loss of room and generally with but little light. One of the best examples of the stack-room is afforded in the addition to Gore Hall, Harvard University, Cambridge, Mass., a building seventy feet long by thirty wide, with a vertical height of fifty feet, divided into six stories, each seven feet high, by open iron gratings or foot-plates. The shelving is supported on a series of iron skeleton uprights, two feet wide and three feet apart, extending the whole height of the building. This area of 89,000 cubic feet accommodates 263,000 volumes, an average of 10 to each running foot of shelving space. A large number of the new library-buildings erected throughout the country during the last few years provide for the storing of their books by modifications of the stack system. A good example of a small library conveniently arranged for ready access to a large number of volumes is found in the Ottendorfer Branch of the New York Free Public Library. All library-buildings should be of fire-proof construction, and so located, if possible, as to admit of extension when required.

2. *Selection of Books*.—In the selection of books for a library one of the most important points to be considered is the character of the demand that will be made upon it by the majority of its users. Books of reference—the books that answer questions—will be about the same, whatever the locality, their number and variety depending upon the amount of money to be expended. But the bulk of the books should be selected with special view to their usefulness to and their fitness for the immediate constituency of the library. "It is questionable," said Mr. J. Winter Jones, of the British Museum, in his address before the In-

ternational Congress in London, "whether the selection of books for a library should be undertaken by a committee. There is danger of undue prominence being given to one faculty to the sacrifice of others, or of some class or classes being neglected or prohibited, from a want of a due appreciation of their value or utility. This risk is greater in small than in large libraries. The safest, and therefore the best, course is to be very careful in the choice of a librarian, and then to leave the selection of books to him, subject, of course, to the control of the committee of management whenever the exercise of that control may be deemed to be advisable."

3. *Classification*.—There are many different systems of classification of books in use, and their originators or users naturally favor each the one with which he is most familiar. The system to be adopted in establishing a new library or in making a change is a matter which demands the most careful consideration by the librarian. The decision will largely depend upon the character of the library and its probable line of growth. The librarian should make himself acquainted with the systems in successful use in the best libraries most nearly like his own, and select that which seems best adapted to his needs. A classification that might be satisfactory for a free circulating library would not necessarily be so close as to be suitable for a reference library or one in which readers were allowed access to the books on the shelves. Mr. Jones, of the British Museum, remarked on this point that "the books in all libraries ought to be carefully classed on the shelves, and the classification to be more minute in proportion as the library increases in extent."

The question of location, or the assigning of a shelf-mark or number to indicate the particular place a book occupies in the library, is closely involved with that of classification, as it is necessary to provide that, in making additions to the library, books belonging to the several classes shall always be kept together. The advocates of the relative-location system claim that it allows for indefinite expansion, and that under it the closest classification of books by subject-matter can be made on the shelves; while in the fixed-location plan, when a shelf is once filled, additional books on the same subject must be assigned to a different place.

The most prominent schemes of classification are those of Mr. C. A. Cutter, Librarian of the Boston Atheneum, of Prof. Melvil Dewey, Librarian of Columbia College Library, and of Mr. Jacob Schwartz, Librarian of the Apprentices' Library, of New York city.

4. *Catalogues*.—The catalogue most useful to the readers in any library is that which makes known to them all its resources on any given subject; but this is the ideal catalogue that has never yet been made. Approximately, however, very much can be done under the system

of card catalogues now in general use, which admit of indefinite growth, and of arrangement alphabetically by authors, by titles of books, or by subjects, separately or combined, as in the dictionary catalogue, or according to any scheme of classification that may be adopted.

Printed catalogues are very useful, but, especially in the case of large libraries, are no sooner done than they fail to show the actual state of the library. They should in all cases be supplemented by full card catalogues of the additions made to the library while printing. Among the most useful printed American catalogues may be named those of the Boston Athenaeum, the Brooklyn Library, the Boston Public Library, with its supplement and annotated class lists, the New York State Library, the Milwaukee Public Library, and the two volumes each of the new catalogues of the Library of Congress, of the Peabody Institute, Baltimore, and of the Astor Library.

A form of catalogue called a "finding-list," made up with short titles of books, has been

published by some libraries, and has proved very useful and successful, giving an excellent guide to readers at a minimum of expense. To the making of the catalogue, whatever kind may be adopted, only skilled and expert workers should be assigned, and their work should be under the immediate supervision and direction of the librarian. To all library work, especially to cataloguing, must be rigidly applied the old maxim of Lord Chesterfield, "Whatever is worth doing at all is worth doing well."

Finally, the librarian himself must be the living catalogue of his own library, familiar with its every part, and prepared at all times to render prompt and courteous but not officious assistance to every seeker after information.

Statistics.—In 1776 there were twenty-nine public libraries in the thirteen colonies, numbering altogether 45,623 volumes; in 1800 there were forty-nine libraries, and about 80,000 volumes; from 1800 to 1825, 179 public libraries were formed; from 1825 to 1850,

PUBLIC LIBRARIES IN THE UNITED STATES—STATISTICAL SUMMARY.

STATES.	50,000 vols. and over.	10,000 vols. to 49,999.	5,000 vols.	1,000 vols.	Total in Library Jour., list	Under 1,000 vols.	Total in Gover- nment list.	Average size of libraries.	Total vols.	Population, census of 1880.	Population to libra- ries.	Books to population.
Maine	7	10	57	74	62	136	2,857	388,611	648,986	4,772	— 2	
New Hampshire	1	5	10	62	51	27	2,748	361,443	846,991	2,630	+ 1	
Vermont	6	1	85	42	33	75	2,936	222,47	332,286	4,430	— 14	
Massachusetts	8	63	74	232	427	142	569	6,273	3,569,085	1,788,055	8,184 + 2	
Connecticut	1	18	9	75	98	81	179	3,951	707,159	622,700	8,479 + 1	
Rhode Island	1	6	6	52	65	18	78	5,061	395,080	276,581	8,945 + 14	
New York	11	43	47	285	391	859	750	4,062	3,163,508	5,052,870	6,517 — 2	
New Jersey	1	8	11	54	74	52	123	4,650	463,662	1,181,116	8,977 — 3	
Pennsylvania	5	84	52	197	238	145	438	4,588	1,965,093	4,282,891	9,891 — 2	
Ohio	8	17	85	102	157	133	290	6,361	1,070,259	8,198,062	11,028 — 3	
Indiana	9	10	68	82	83	170	2,487	414,328	1,978,301	11,687 — 5		
Illinois	1	14	29	123	172	145	317	2,932	929,391	8,077,871	9,709 — 8	
Michigan	1	9	11	82	103	236	339	1,732	557,150	1,636,987	4,829 — 8	
Wisconsin	1	7	5	49	62	52	114	3,428	390,783	3,151,497	11,589 — 4	
Minnesota	5	26	36	46	82	2,132	178,941	780,773	9,522 — 4			
Iowa	8	12	48	68	52	120	2,644	317,330	1,624,615	13,588 — 5		
Missouri	2	7	8	52	69	77	146	2,862	417,966	2,165,830	14,852 — 5	
Kansas	2	6	31	39	48	82	2,134	174,952	996,096	12,143 — 5		
Nebraska	2	2	15	19	29	45	2,007	96,344	452,402	9,425 — 5		
Dakota . . . . .	..	..	7	11	18	919	16,550	185,177	7,510 — 8			
Colorado . . . . .	..	6	11	17	18	80	2,124	63,728	194,327	6,478 — 3		
Wyoming Territory	1	..	..	1	3	4	2,973	11,892	20,759	5,197 — 2		
Montana	2	..	2	4	6	2,490	14,400	39,159	6,527 — 2			
Utah . . . . .	..	2	5	7	7	14	1,967	27,534	143,968	10,238 — 5		
Idaho . . . . .	..	1	2	8	8	6	1,183	6,899	82,610	5,435 — 5		
Nevada	1	..	4	5	2	7	8,832	26,827	62,266	8,895 — 2		
California	4	12	8	57	81	107	188	4,181	750,052	864,694	4,599 — 1	
Oregon	2	1	8	11	10	2,375	49,849	174,768	8,322 — 4			
Washington Territory . . . . .	..	..	7	11	18	1,036	18,632	75,116	4,173 — 4			
Maryland	3	12	8	40	63	26	89	6,916	615,494	984,943	10,005 — 14	
District of Columbia	4	15	7	26	52	14	66	18,230	1,203,156	177,624	2,691 + 7	
Delaware	2	2	8	12	6	15	3,573	64,320	146,604	8,145 — 2		
Virginia	8	10	28	46	29	75	4,291	321,842	1,512,561	20,168 — 5		
West Virginia . . . . .	..	3	3	6	13	19	1,902	86,188	615,457	32,550 — 17		
North Carolina	1	7	27	84	22	57	2,773	158,050	1,899,750	24,557 — 9		
South Carolina	4	4	20	28	12	40	4,414	176,563	995,577	24,889 — 54		
Florida	1	..	4	5	9	14	1,904	26,660	269,493	19,250 — 10		
Georgia	7	7	28	42	24	66	3,496	230,714	1,542,180	23,366 — 64		
Kentucky	6	7	41	54	45	99	2,838	280,510	1,648,690	16,653 — 6		
Tennessee	4	8	33	45	27	72	2,711	195,156	1,542,359	21,422 — 8		
Alabama	2	8	18	23	18	41	2,324	95,303	1,262,505	30,703 — 18		
Mississippi	1	1	21	23	14	37	2,597	96,072	1,121,597	30,584 — 12		
Arkansas	1	9	4	8	8	16	3,009	48,143	892,525	50,158 — 16		
Louisiana	5	2	16	23	19	42	8,328	189,759	989,946	22,380 — 7		
Texas . . . . .	..	3	19	22	20	42	1,613	67,742	1,591,749	37,899 — 22		
Indian Territory . . . . .	..	..	3	3	7	10	780	7,891	.....	.....
New Mexico . . . . .	..	1	3	4	2	6	2,395	14,370	119,565	19,928 — 8		
Arizona . . . . .	..	..	1	1	2	4	2,164	8,656	40,440	10,110 — 5		
Totals	47	355	440	2,139	2,981	2,857	5,338	8,862	20,622,076	50,155,788	9,896	— 24

551; from 1850 to 1875, 2,240; in 1876 free public libraries in some form had been established in nearly twenty States, and 3,682 libraries reported an aggregate of 12,276,964 volumes, not including the libraries of common and Sunday schools and church libraries, these together containing in 1870 about 10,000,000 volumes.

In the report of the Commissioner of Education for 1884-'85 there will be published a list of 5,338 public libraries, containing 300 volumes and over, each; of these, 2,139 are of 1,000 vols. or over, but less than 5,000 vols.; 440 are of 5,000 vols. or over, up to 10,000 vols.; 355 are of 10,000 vols. or over, up to 50,000 vols.; and 47 are of 50,000 vols. or over. We give below, from the "Library Journal," a schedule of these forty-seven libraries arranged in order of size, beginning with the Library of Congress of 565,134 volumes, and in addition 191,000 pamphlets. While the figures for some of these libraries might have been increased by giving the exact number of volumes at the close of 1886, we have preferred to retain the table as it stands, in order to preserve the relative position of the libraries in the list. These forty-seven libraries aggregate 5,026,742 volumes.

From the statistical summary, for which we are also indebted to the "Library Journal," it will be seen that the entire list of 5,338 libraries shows a total of 20,622,076 volumes, or one volume for every two and one half persons of our entire population. The number of libraries is one to every 9,396 persons. New Hampshire leads off with a library for every 2,690 of population, and rather more than one volume to each person; the national and departmental libraries at Washington lift the District of Columbia to the second place, with a library for every 2,691 persons, and more than seven volumes to each; Massachusetts comes next, with a library to every 3,134 persons, and more than two volumes to each; Connecticut and Rhode Island follow, with a library to every 3,479 and 3,545 persons respectively; then Washington Territory, Vermont, California, Maine, and Michigan fall into line, with a library to every 4,173 to 4,829 persons; West Virginia, Texas, and Arkansas close the list, with one library to every 32,550, 37,899, and 50,158 persons, respectively, and one volume to every 17, 22, and 16 persons. The "Library Journal" for January and February, 1887, contains a tabulated list of 2,981 public libraries of 1,000 volumes and upward each, from advance sheets of the "Report of the Commissioner of Education," with the addition of classification by size, and the name of the librarian or reporting officer.

The following table includes the libraries in the United States, of 50,000 volumes and over, arranged in the order of size:

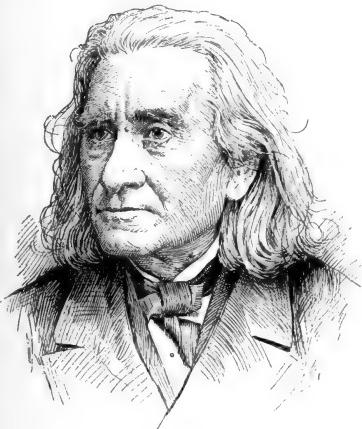
1 Library of Congress.....	Washington, D. C.	565,134
2 Public Library.....	Boston, Mass.	424,837
3 Harvard College.....	Cambridge, Mass.	232,800
4 Astor Library.....	New York city...	223,284
5 Mercantile Library Ass'n ..	New York city...	210,431
6 Mercantile Library Co.....	Philadelphia, Pa.	152,000
7 Athenaeum	Boston, Mass.	150,261
8 Library Co. of Philadelphia..	Philadelphia, Pa.	150,000
9 Public Library.....	Cincinnati, O.	142,153
10 State Library.....	Albany, N. Y.	128,871
11 Yale College.....	New Haven, Conn.	125,000
12 House of Repres. Library...	Washington, D. C.	125,000
13 Public Library.....	Chicago, Ill.	119,570
14 State Historical Society....	Madison, Wis.	116,750
15 Sutro Library.....	San Francisco, Cal.	110,000
16 Brooklyn Library.....	Brooklyn, N. Y.	90,000
17 Peabody Institute.....	Baltimore, Md.	88,000
18 American Ant'n Society...	Worcester, Mass.	80,000
19 N. Y. Society Library.....	New York city	80,000
20 Surgeon-General's Library...	Washington, D. C.	16,738
21 State Library.....	Annapolis, Md.	15,000
22 N. Y. Historical Society...	New York city	15,000
23 Apprentices' Library.....	New York city	69,587
24 Columbia College.....	New York city	68,378
25 Woodstock College.....	Woodstock, Md.	67,000
26 Mercantile Library.....	St. Louis, Mo.	65,657
27 Free Public Library.....	San Francisco, Cal.	65,000
28 Dartmouth College.....	Hanover, N. H.	65,000
29 College of New Jersey.....	Princeton, N. J.	65,000
30 Free Public Library.....	Worcester, Mass.	63,941
31 Brown University.....	Providence, R. I.	62,500
32 State Library.....	Sacramento, Cal.	61,612
33 Lehigh University.....	S. Bethlehem, Pa.	61,000
34 State Library.....	Boston, Mass.	60,000
35 Public Library.....	St. Louis, Mo.	60,000
36 State Library.....	Harrisburg, Pa.	60,000
37 Public Library.....	Detroit, Mich.	59,658
38 Mercantile Library.....	San Francisco, Cal.	55,000
39 City Library Association...	Springfield, Mass.	55,000
40 Cornell University.....	Ithaca, N. Y.	54,540
41 Ohio State Library.....	Columbus, O.	53,560
42 Buffalo Library.....	Buffalo, N. Y.	58,000
43 Patent-Office Library.....	Washington, D. C.	50,000
44 Free Public Library.....	New Bedford, Mass.	50,000
45 Union Theological Seminary.	New York city	50,000
46 Young Men's Mer. Library..	Cincinnati, O.	50,000
47 American Phil. Society.....	Philadelphia, Pa.	50,000

LISZT, FRANZ. A German musician, born in Raiding, Hungary, Oct. 22, 1811; died July 31, 1886. His father was a Hungarian, his mother an Austrian. For several years the father had been an assistant in the administration of the celebrated Esterhazy estates, and resided in Eisenstadt, where his skill in music brought him into the society of the most eminent musicians of the day. He made the acquaintance of Cherubini, and also became the friend of Hummel, whose style of music and playing had begun to form a school of its own. In 1810 he was appointed steward of Raiding, and soon afterward removed thither. He married an Austrian maid who is described as tall and slender, with features regular, calm, and peaceful, with dark eyes and black hair, which, according to the custom of the time, she wore braided over the temples. The husband and wife were Catholic, and adhered with closest devotion to the ceremonies of their church. The mother was especially religious. At the age of six years, Franz began his musical education, and made astonishing progress. His eyes read the notes as if in play, and the little fingers formed and held the keys with rapidity, sureness, and firmness, as if they had been for long years in practice. He was possessed of an extraordinarily quick and delicate ear, and it was remarked that he could not only name every note, but could repeat every chord without having seen the notes. His memory was prodigious, and his perseverance striking. When he was not sitting at the piano, he was scribbling notes, which he had learned to set down without any instruction. He wrote

musical notes much earlier than the alphabet, and wrote them much more readily and easily. The smallness of his hands was to him a source of great vexation; with all his efforts, he could not stretch them across an octave. Sometimes even, a tenth would occur for the left hand while the right was occupied among the upper keys. For a while he was in despair, but hit on a happy expedient, to the great delight of lookers-on. While the right hand played the chord, and the left the bass, he struck the tenth note with his nose. During his childhood he was remarkably healthy, but during boyhood his strength declined, he appeared to sicken, and at last was unable to stand. A burning fever seemed to consume him, and his slender form visibly wasted. He was reported dead, a coffin procured, and preparations were made for his burial; but an improvement began, and the boy recovered. It is a remarkable circumstance that, while Liszt was never otherwise

but sat down to the piano with the same quiet ease that was a characteristic of later years.

At the age of nine he made his first appearance in public, in assisting at a concert given by a blind man. During the day he was attacked by intermittent fever, but he went to the concert and played while his teeth chattered, played with perseverance, power, discretion, and execution that worked irresistibly on his audience. So glowing were the descriptions of his proficiency that he was called to play in the presence of royalty, where his talent was triumphantly recognized. Six of the nobility united in a contribution which should insure six hundred Austrian gulden a year to be devoted to his education; the home in the Hungarian village was abandoned, and the family went to Vienna, where the young prodigy was put under the instruction of the celebrated Czerny. He had studied for a year and a half when it was decided that he give his first public concert. The 1st of December was fixed upon, and a fine audience assembled. With beaming face and sparkling eyes he sprang to the platform and played with evident joy and satisfaction. His performance was pronounced phenomenal, and the name of "Little Hercules" was given him. A second concert was given, four months later, which Beethoven, coming from his retirement, graced by his presence. At its close the audience pressed around him, and Beethoven sprang forward, seized him in his arms, and kissed him. With this concert began his European fame as a pianist. His father journeyed with him to Paris, giving concerts in the principal cities by the way, and hoping to enter him in the Conservatory, presided over by Cherubini, in the French capital. But when they were ushered into the presence of the great composer, and were informed that no foreigner could be received, father and child turned away with heavy hearts. Though refused at the Conservatory, Liszt was received in private circles, and in the salons of the aristocracy his genius found recognition. His first public appearance in Paris was on March 8, 1824, in the Italian Opera-House. His success was without parallel, and ended in an ovation such as is rarely given to any artist. After this there was no musical soirée without him. His praises were sung, his picture was displayed in the windows of the print-shops, and a cast of his head was made in plaster-of-Paris by Dr. Gall, the phrenologist, to make studies in pursuit of his science. Near the close of the Parisian season, his father determined on going to England, where his genius astonished the musical society of London as it had that of Paris. During his stay in Paris he composed his first operetta, "Don Sancho," produced on Oct. 17, 1825. After it had been twice more represented, with favorable reception, the score was delivered over to the Académie Royale, and never again saw the light—the lot of all the first pieces of young composers. The compositions



FRANZ LISZT.

visited by heavy sickness, he had a similar illness in his transition from boyhood to youth, and a second time he was reported dead.

His early education was received from the priest. There were no schools for youth in the village, whose inhabitants were mostly serfs, and his parents considered him too young to be delivered over to a town educational establishment. He did not even learn to speak the Hungarian language. His parents conversed in German, which was at that time in Hungary the language of state affairs and of the better sort of society, and so it came to pass that the great musician, though born a Hungarian, never learned his native language.

He seldom went beyond the limits of the little village where he was born, and only then to accompany his father to Eisenstadt and Oedenburg, whither he went on business connected with his stewardship. When in the presence of strangers he betrayed no timidity,

of Liszt's youth that have become known are, in chronological order, as follow: 1823 (eleven years old), "Tantum ergo," for choir, manuscript lost; 1823, "Variation No. 2, of 50," etc.; 1824, "Impromptu for Piano-forte," printed in 1824; 1824, "Operetta, Don Sancho," manuscript lost; 1825, "Grand Overture," manuscript lost; 1825, "Allegro di Bravoura," printed in 1825; 1825, three sonatas for piano-forte, manuscript lost; 1826, "Études en deux Exercices," printed in 1826; 1827, "Concerto for Piano-forte," manuscript lost.

In May, 1827, a third journey to England was undertaken; but while there the health of both father and son became precarious, and the physicians recommended sea-bathing at Boulogne-sur-Mer, and a complete cessation from all exertion. The life in Boulogne, the baths, the freedom from the former exhausting life, benefited the son visibly; but the father died on Aug. 28, 1827, in his forty-seventh year. The child had known death only by name, and the horror that seized him, while he witnessed the last struggles of his father, produced a physical torpor that lasted many days. But life and a good constitution triumphed. Setting out for Paris, he sent to Vienna for his mother, took a modest dwelling, and began the labor of teaching.

When his father died, Franz had worked through every branch of musical theory and practice that can be classed under the expression "artistic schooling and education." At the age of twelve he read the scores, as well as the most difficult piano-forte pieces, at sight; at fourteen, besides several pieces for the piano, he had composed an operetta; at sixteen he had acquired double counterpoint, and was classed as a *virtuoso* by his artistic contemporaries. At the age of seventeen he was engaged as teacher to the daughter of the Count and Countess Cricq, one of the first of the aristocratic families that intrusted the musical education of their daughters to the young master. The pupil and teacher were of the same age, and a tender affection sprang up between them, which was approved by the Countess, who, however, was in a short time seized with a fatal illness. The music-lessons were interrupted by her death, and not resumed until the days of mourning were over. The first meeting after her death was deeply affecting for both. The lesson was begun in the usual manner, but, as the harmonies resounded, his composure forsook him, and both wept bitterly. They were very frequently together from this time, and their friendship ripened into a warm affection, until his visits were abruptly terminated by the Count. Summoning the youth before him, he pointed out that the difference of rank would forbid any closer connection than that which had existed. Liszt stood before the Count, as pale as death, but silent. The blow fell more heavily on the daughter. A long illness was the immediate consequence of their separation, and, when she was at last given

back to life, all feeling for the world was dead. Her father obliged her to become the wife of M. d'Artigan, a man of his own rank, and she obeyed; but Liszt's image never faded from her heart. Meanwhile troubled times came into Liszt's home. The son shunned the world, and the mother suffered in his unhappiness. The greater part of his time was spent in the church, his life became extremely irregular, a nervous crisis came on, and he fell ill. The vital powers appeared to be exhausted, and his strength declined daily. This condition lasted for several months. But a reaction came, and the period of convalescence lasted till the July Revolution. With returning health his mind underwent a complete change. He began to read, and the more he read the more his desire for knowledge increased. Secular and religious works, the weightiest and the most frivolous productions—Voltaire, Lamartine, Rousseau, and Chateaubriand, with scores of others—were devoured by him. This change of mood affected his habits. He no longer passed his time so exclusively in church, he chose the theatre instead. He was also attracted to the opera-house, and when, in the winter of 1829-'30, Rossini's "Wilhelm Tell" was first performed, he could not find words to express his enthusiasm.

At this time his music as a study was almost abandoned. His repugnance to exercising it publicly increased violently, and often kept him from it; but when his ears were saluted with the thunderings of the cannon of the July Revolution, as they resounded through the streets of Paris, a new nature awoke in him, and with difficulty his mother prevented his rushing to the barricades. He shouted with the French youth in praise of the silver-haired Lafayette, and was inspired by the exploits of the heroes who victoriously defied the guns and bayonets of royalty. In the midst of the clatter of arms he sketched a *symphonie révolutionnaire*. The ideal plan of the symphony was, to express in music the triumphant shout of nations, not of France alone, but of all mankind. He threw himself into the work of composition with the ardor of inspiration; but, before the symphony was finished, the days of excitement were over, and nothing but disappointment had arisen from the dust and ashes of the revolutionary conflagration. Then his enthusiasm changed to indignation and scorn, and he left the work unfinished.

From this memorable July, Liszt's manner of living was changed. He went into society, taught countesses and princesses, and gave free course to his glowing fancy in his fantasias for the piano. He became interested in intellectual matters and the occupations of public life, and was frequently seen at the gatherings of artists, poets, and *savants*. At this time he became interested in the society of the St. Simonians. He was introduced to them by one of their chiefs, became fascinated, and was a con-

stant attendant at their meetings. At first, they were rather a social-philosophical society than a religious-socialistic sect; but their ideas of human right and human happiness assumed a wider range, while their visions portrayed new plans for the benefit of humanity. But their doctrines changed for the worse, and the society went to a rapid moral and social ruin. Much adverse criticism regarding Liszt's connection was indulged in. His own explanation was this: "It is true I had the honor to be the intimate friend of several adherents of St. Simonian, visited the assemblies, and heard the discourses, but I never wore the famous blue coat, still less the later uniform. I never belonged, either officially or non-officially, to the society as such, and never rendered it any service. Heine, and several others, though compromised and compromising, were in the same case."

In 1831, Paganini, in the zenith of his European fame as a violinist, arrived in the French metropolis. This gay city was at the time filled with terror at the approach of Asiatic cholera. On March 9, the strange, gaunt musician with a demoniac glance, stood in the hall of the Grand Opéra. His playing bewildered and astonished the musical world; no *virtuoso* had ever caused so much excitement or awakened so much enthusiasm as he. His life was a mystery; he was supposed to have been a criminal, and there arose tales attributing to him the sorcerer's art. It was whispered that he had sold his soul to the evil-one, and that the fourth string from which he elicited such enchanting melodies, was the intestine of his wife, whom he had killed with his own hand. Liszt was charmed and stunned at Paganini's wonderful playing, and the violin capriccios gave him the first impulse toward the modern system for the piano-forte, prompting him to enter upon the practice, till then unknown, of transferring effects. It was asserted that Liszt belonged to the school of French romanticists, and sided with them in their struggle with the classical, but it was also declared that this impression was an error. As, some time before, he had entered the St. Simonian movement, so now the musical frenzy of the day seized him, and he accepted all the fancies of the modern school. He associated himself enthusiastically with Berlioz, who was eminently the pioneer musical genius of the century; he became attached to Chopin as a brother, and their friendship, springing from a community of feeling, became a mutual influence full of spiritual power for both. When Chopin, in the bloom of life, sank into his grave, Liszt, with the musical epitaph entitled "Chopin," erected an enduring monument to his friend. He also wrote in Weimar, in 1849, his book on Chopin, which is regarded as an important piece of musical literature.

As a mover in the political arena of the period, Liszt at times played a conspicuous part. His opposition to Louis Philippe was extremely bitter, and he not only would avoid meet-

ing him, but would refuse to play in his presence, and constantly refused to play at the Tuilleries. At one time in 1830 the King approached him in a public place, where there was no chance for escape, and began a conversation. After some time, in which the only response to his remarks was a silent bow, or a brief "Yes, sire," the King said, "Do you remember that you played at my house when you were a boy and I the Duke of Orleans? Much has changed since then." "Yes," Liszt burst forth, "but not for the better!" The consequence of this imprudent retort was that Louis Philippe, with his own hand, drew a stroke through Liszt's name, which stood on the list of those who were to be distinguished by the Cross of the Legion of Honor. He received the decoration, however, ten years later. His bitterness toward royalty and the nobility showed itself in many ways, and he assumed a bold and defiant demeanor toward impertinent persons in high society. Some diamonds presented to him by Frederic William IV he threw into the side-scenes; he confronted the Czar Nicholas I with a defiant word; he refused to give the customary invitations to his concerts to Ernest Augustus of Hanover, and Ludwig I of Bavaria; he would not play before Queen Isabella of Spain, because court etiquette forbade his personal introduction to her.

In 1834-'35 was formed his acquaintance with the Countess d'Agoult, a wife and mother, whose infatuation for the youthful artist was so great that she left husband, home, and children, and so influenced Liszt that while for a time his higher nature revolted, he at last yielded, and for ten years the destinies of the two were linked. Paris condemned him for a time, but eventually forgave them both. During the greater part of these ten years he engaged in concert tours, pursued his musical studies, and contributed largely to musical literature.

In the early part of 1836, while Liszt was residing in Geneva, Thalberg appeared in Paris and created the wildest enthusiasm by his artistic performances. Liszt suddenly returned to Paris. Thalberg, without any idea of his rival's movements, had set out the day before for Vienna. Liszt, to test the musical public, gave two private concerts, and the multitudes that thronged to hear him convinced him that his hold on the Parisians had not been lost. In December, 1836, he went a second time to Paris, and for the first time since his great scandal, a period of a year and a half, he was announced to appear at a public concert. The news created a profound sensation. He had not been forgiven. On the contrary, the assembly was full of indignation against him. When he mounted the platform the audience had filled every part of the vast hall; but no welcome was accorded him, nothing but a painful silence reigned. He began to play; the audience yielded to his spiritual might, and a threefold burst of applause recognized

his full triumph. The rivalry between him and Thalberg increased. Parties were formed, and Thalbergites and Lisztites took the field to wage a war in the musical journals. Liszt was irritated by the assertions of the Thalberg party, and permitted himself to write and publish a review of Thalberg's "Grand Fantasie" and "Caprices." This produced a feeling against him which lasted a long time. He resumed his professional tours and devoted himself to composition until 1839, when, after a long visit to Italy, he determined on a separation from the Countess d'Agoult and the sending of his three children to Paris with their mother, while he departed on a European concert tour. He traveled almost incessantly from one art center to another, and was received everywhere with unbounded enthusiasm. This was continued until 1848. In the first year of his travels occurred the great inundation of the Danube, causing unheard-of suffering at Pesth, and he gave several concerts whose proceeds were entirely devoted to alleviating the distress. Oedenburg and Pesth created him an honorary citizen in gratitude for the princely sum so philanthropically given, and the "sword of honor," according to Magyar custom, was presented to him with impressive ceremonies. In 1840 he played in Hamburg and afterward in London, winning the admiration of Dutch and English alike. At the latter city an agent, in whom he had placed implicit confidence, robbed him of £50,000, the proceeds of three hundred concerts. This misfortune he bore bravely. In the following year he offered to give a concert whose proceeds should be devoted to the completion of Cologne Cathedral. He was then staying at the island of Nonnewörth, near Bonn, and the Liedertafel, a musical society, went thither to escort him to Cologne. A steamboat was chartered, and, amid brilliant fireworks and the music of a dozen bands, he entered the city, greeted with enthusiasm by its citizens. His welcome was warm at St. Petersburg, but at Berlin he achieved his greatest triumph. A Beethoven festival was organized at Bonn in 1845 to celebrate the erection of a colossal bronze statue. The enterprise fell flat. Liszt took it in hand, and the celebration was one of the most magnificent of its kind. The artist's performance of Beethoven's concerto in E flat was the crowning performance of the festival. In 1848 he took up his abode in Weimar, where he was court capellmeister, and closed his career as a *virtuoso*, resigning his place on account of jealousy and opposition. He then betook himself to Paris, where he dined with Louis Napoleon and played before the Empress. The conversation turned upon the age of the Emperor, who said he was half a century old. "Sire, you are the whole century," replied Liszt. The Emperor offset this compliment with the cross of a commander of the Legion of Honor, which Louis Philippe would not give. Soon after this journey to Paris, Liszt went to Rome.

LITERATURE, AMERICAN, IN 1886.

Suddenly the announcement was made that he had taken religious orders, and it was true; Liszt came back from Rome in 1868 an abbe. However, he had no idea of playing the part of a penitent ascetic. He gave concerts publicly in Pesth in priestly garb, and decked with orders he took part in all the festivities. In 1880 a canonry was conferred on him, and Prince-Cardinal Hohenlohe received his oaths of office and invested him with the canonical insignia. Liszt had just completed a visit to London, where he went to produce his last oratorio, "St. Elizabeth," which was greeted with enthusiasm. He was one of the remarkable men of the century. As a performer he was the greatest in the annals of his art, with perhaps the exception of Paganini. As a composer he attained a rank commensurate with his genius. His influence on his art has been wide-spread. As a literary man he showed singular aptitude, and his articles and monographs on Robert Franz, Chopin, and the music of the gypsies, were rare productions. He was the author of thirty-one compositions for the orchestra, seven for the piano and orchestra, two for piano and violin, nine for the organ, thirteen masses, psalms, and other sacred music, two oratorios, fifteen cantatas and chorals, sixty-three psalms, and one hundred and seventy-nine works for the piano-forte proper.

LITERATURE, AMERICAN, IN 1886. Fiction.—Considering the perennial influx of English publications that are reprinted in this country, American authors make a very creditable showing for the year. Especially is this true with regard to fiction, a department in which the English are so prolific that, in the present lack of international copyright, they largely overstock not only their own but the American markets. If this literature were all of a high class, the objection would not be so patent; but the temptation to publish irrespective of merit, when nothing need be paid to the author, is so great that publishers yield to it, feeling assured that they can dispose of enough copies to afford at least a moderate profit on the mechanical investment. The only hope of relief appears to be that the business will be overdone, and publishers will take active measures to secure reasonable protection for authors and publishers in both countries.

While it can hardly be said that the year witnessed the production of any really great American novel, the average of excellence is high. Indeed, a dozen or more of those here enumerated would, if they had appeared twenty years ago, have won world-wide recognition. The general quality of literary work is obviously improving, and that in spite of very disheartening conditions.

Several authors have of late refuted the oft-reiterated assertion that there is no local color for literary purposes in New York city. Henry C. Bunner's "Midge" is one of these, Edgar Fawcett's "House at High Bridge" is

another, Sidney Luska's "Madam Peixada" is a third, and "The Anonymous Story of Margaret Kent" is a fourth. Nor does this by any means exhaust the list. In addition to "Midge," Mr. Burner has published "In Partnership," as joint author with Brander Matthews. "For Mamie's Sake," by Grant Allen, is a story of love and dynamite, remarkable and even startling in its originality of plot and action. "Babylon," by the same author, tells the story of two country boys, one American, the other English, who have a talent for art, and, after surmounting early obstacles at home, meet at Rome as students. Amelia E. Barr has shown exceptional strength as a writer of fiction, and her three novels, "The Last of the Macallisters," "A Daughter of Fyfe," and "A Bow of Orange Ribbon," have been well received. Louisa M. Alcott has written several tales more or less supplementary to her well-remembered "Little Men." The latest is "Jo's Boys, and how they turned out." The "little men" have quite grown up, but they are still entertaining. "Domesticus, a Tale of the Imperial City," by William Allen Butler, is a very clever presentation, under the guise of a story, of the trials, perplexities, and triumphs of an American housekeeper in the master of servants. The Latinized nomenclature is often very quaint, and the author's graceful wit is not dulled by the thirty years that have passed since he wrote "Nothing to Wear." The Moravians furnish the motive for Wolcott Balestier's novel, "A Victorious Defeat."

In spite of its unrepentant title, or perhaps largely because of it, Mrs. Burnett's "Little Lord Fauntleroy" is already a juvenile classic. It may be confidently recommended to American boys. In this connection the new six-volume edition of Mrs. Burnett's works may be mentioned. "On Both Sides" is a bright story by Frances Baylor, cleverly showing up English and American characteristics, and the different social conditions of the two countries. With juvenile readers the name of Horatio Alger is a synonym for a good storyteller. "Helping Himself, or Grant Thornton's Ambition," has all the good qualities of its predecessors. The Tennessee mountains still offer a rich field for Miss Murfree (Charles Egbert Craddock). Her "In the Clouds" is perhaps as strongly marked as any of her very popular novels. Helen Campbell has been doing good service for the working-women of large cities. "Miss Melinda's Opportunity" is intended particularly for young girls of fair education who are forced to earn their living in town.

Army life and the Military Academy afford subject-matter for three novels: "Mr. Desmond, U. S. A.," by J. Coulter; "Cut," by G. I. Cervus; and "Marion's Faith," by C. King, the last being a sequel to "The Colonel's Daughter."

"One Day in a Baby's Life" owes its context to the same author, who has made a

clever adaptation from the original French of Arnaud. Marion Crawford's one novel for the year was "A Tale of a Lonely Parish." Harry Castlemore selects canoeing as the motive for his last book on out-of-door life, "Joe Wayring at Home." "What Katy did next" is, of course, by Susan Coolidge. It carries Katy abroad, where she proves just as entertaining as she was at home. "The Felmers," by S. B. Elliott, daughter of the late Bishop Elliott, of Georgia, deserves a place among the meritorious productions of women in this line of work.

"The Peterkin Papers," including an addendum not published before—"The Peterkins at the Farm"—appeared in small folio. Miss Hale also brought out "The Last of the Peterkins, with others of their Kin." Everybody will regret that there are to be no more Peterkins, but of course there is a time to stop.

Mary Halleck Foote proves in "John Bodewin's Testimony" that a woman can write of life in the California mines as well and as strongly as Bret Harte himself, though in a decidedly different style. Robert Grant is believed to be the author of "Face to Face," a strong story, touching the labor problems. He is the acknowledged author of "A Romantic Young Lady," in which he sustains his well-earned reputation, and of "The Knave of Hearts," a story in his favorite vein of social satire. M. A. Foran presents the labor problem "From the other Side," that is, from the workingman's side. The difficulty with the mission of such books is, that for the most part only workingmen read them, and they know all about it already, so far as concerns their side, from experience.

William D. Howells, although nominally holding an editorial place in New York, does his work in Boston. He published during the year two novels, "The Minister's Charge" and "Indian Summer," both marked by his keen yet kindly satirical humor, and both welcomed by his large circle of readers. In "Snow-Bound at Eagle's," Bret Harte shows, as he has often done before, that his "heart's in the Highlands," and that he does his best work with the "Rockies" for a background. His "The Queen of the Pirate Isle" is illustrated by Kate Greenaway.

Julian Hawthorne's three stories—two of them bound in one volume—are entitled "John Parmalee's Curse," "The Trial of Gibbon," and "The Countess Almara's Murder."

"Tales of Eccentric Life" are by Dr. W. A. Hammond and his daughter, the Marchioness Clara Lanza. Dr. Hammond has also written "A Strong-minded Woman," which is a sequel to "Lal," his popular novel of a year ago.

It was with a sad interest that the many friends of the late Mrs. Helen Jackson, "H. H.," welcomed "Zeph," unfinished though the story is. The tale is of homely people, such as "H. H." always glorified in a perfectly natural and life-like way. Mrs. Myra S. Hamlin's

"A Politician's Daughter" tells American girls what they may expect to see in society when they marry Congressmen or other public officers. Henry James brought out two books: "The Bostonians," which can hardly be said to have added to its author's popularity, being excessively long and bitterly satirical, and "The Princess Casamassima," which was shorter and better adapted to please the popular taste. This last deals with the English working-classes—a new line of study for Mr. James, so far as shown by his books as hitherto published. Col. Thomas W. Knox adds to his popular series of like titles, "The Boy Travelers in the Russian Empire," which, indeed, are hardly to be classed as fiction, since they are based on personal knowledge of the countries described. Henry F. Keenan's "The Aliens" traces the fortunes and misfortunes of a family of Irish immigrants in the New World. The book is marked by the author's characteristic brilliancy of conception. "The Man who was Guilty," by Flora H. Longhead, severely and properly emphasizes the uncharitableness of Christians toward reformed criminals. Divorce is the not unpopular nor untimely motive of M. G. McClelland's "Princess"; and, on the other hand, Elizabeth Gilbert Martin, author of "Whom God hath Joined," advocates the strongest possible construction of the marriage tie. James Otis gives us "Silent Pete, or the Stowaways"; and in the same direction, with a nautical motive, is "All Taut," by Oliver Optic, in which he tells how his favorite "ne'er do weels" in a boy's school are reformed by being put at work on the rigging and equipment of a schooner. Edmund Pendleton's "Conventional Bohemian" is a society novel, with the New England coast for its stage, and the occupants of summer cottages for actors. "The Madonna of the Tubs" is one of Elizabeth Stuart Phelps's best modern tales, and, fictitious though it be, is true enough to be classed as semi-biographical. Her "Burglars in Paradise" is supplementary to an "Old Maids' Paradise," and like it in its fund of brightness and wit. Frank R. Stockton's first appearance in book form, without previous introduction as a serial, was "The Late Mrs. Null." His "Casting away of Mrs. Leeks and Mrs. Aleshine," published later in the season, is a delightful bit of refined burlesque. He also published "A Christmas Wreck." "A Sentimental Calendar," by J. S., of Dale (F. J. Stimson), sustains the author's reputation as an ingenious and clever writer. "Two Modern Animals in the Tower," "Polly," and "Hester and other New England Stories," by Margaret Sydney, are excellent stories of their class. George Alfred Townsend's "Katy of Catoctin" introduces so many real, personal, and local names that were in everybody's mouth during the war period that it should almost be classed as history. Its most conspicuous passages are those that relate to the assassination of President Lincoln, and the stirring events of contemporary interest.

J. T. Trowbridge's "The Little Master" tells the tale of a young New England school-teacher, who has his eyes opened at an early age to the depravity of human nature alike in boys and in the grown-up folk of a rural village. In "Their Pilgrimage" Charles Dudley Warner mingles the romance of modern life and the possibilities of modern travel in altogether charming proportions. C. S. Reinhart, who furnished the illustrations, is entitled to credit for the intelligence and appreciativeness with which he has entered into the spirit of Mr. Warner's story. W. O. Stoddard's clever Western stories, "Two Arrows" and "Red Beauty," and Kirk Monroe's "Wakulla," recounting the experiences of Northern emigrants in Florida, are among the best "Juveniles" of the year. Another book of romantic interest by the same author is "Flamingo Feather."

It seems hardly fitting to place a story of feudalism in old Japan among the novels of 1886, yet "A Murmasa Blade" is essentially a romance. Louis Wertheimer is the author, a careful student of Japanese customs, traditions, and literature. The illustrations are by a Japanese artist. "East Angels," by Constance Fenimore Woolson, was one of the undoubted successes of the year, dealing with Florida as it was in the old days, and presenting quaint and charming characters and scenes in natural yet striking colors. Mrs. J. H. Walworth published two books, namely, "Without Blemish" and "The New Man at Rossmere," which presented some telling pictures of Southern life. Among the noteworthy anonymous novels are "Constance of Acadia," dealing with New France and the settlement of the province; "Toward the Gulf," romance of Louisiana, touching upon the admixture of races in that semi-tropical region; "A Demigod"; "The Terrace of Mon Désir"; "Inquirendo Island"; "Jacob Schuyler's Millions"; "Justina," an addition to the third "No-Name Series," has not been publicly acknowledged by its author. "Henry Hays" is believed to be the pen-name of Ellen Olney Kirk. His or her "The Story of Margaret Kent," already referred to, was one of the successful novels of the year, and should take rank near the head of the list in a comparative order of merit.

Other noteworthy books are "Roland Blake," by S. Weir Mitchell; "Old Boniface," George H. Picard; "A Plucky One," Mrs. G. E. Spencer; "Agnes Surriage," Edwin Lassetter Byner; "A Banker of Bankerville," Maurice Thompson; "The Psychologist," Putnam P. Bishop; "Love and Luck," R. B. Roosevelt; "Hannibal of New York," T. Wharton; "The Chamber over the Gate," Margaret Holms; "The Captain of the Janizaries," James M. Ludlow; "Next Door," Clara Louise Burnham; "The Lost Name," Mrs. Dahlgren; "Rankin's Remains," Barrett Wendell; "Tulip Place," Virginia W. Johnson; "A Fortnight in Heaven," Harold Brydges; "The Long Run," Rose E. Cleveland; "Atalanta in

the South," Mand Howe; "The Mill Mystery," Anna K. Greene; "Atla," Mrs. J. Gregory Smith; "He fell in Love with his Wife," E. P. Roe; "Poverty Grass and other Stories," Lillie Chace Wyman; "Homespun Yarns," Mrs. A. D. T. Whitney; "A White Heron," Sarah Orne Jewett; "A Secret of the Sea," Brander Matthews; "Misfits and Remnants," S. D. Ventura and S. Shevitch; "A Ranchman's Stories," Howard Seely; "Cabin and Gondola," Charlotte Dunning Wood; "Perdita and other Stories," Ella Wheeler Wilcox; "Old Boniface," G. H. Picard; "Ways and Means," Margaret Vandegrift; "Across the Chasm," Julia Magruder; "The Destruction of Gotham," Joaquin Miller; "Haschish," Thorold King; "The Wind of Destiny," Arthur Sherburne Hardy; "The Prelate," I. Henderson; "Children of the Earth," Annie Robertson Macfarlane; "Footprints in the Forest," the last of Edward S. Ellis's stories of adventure; "Not in the Prospectus," Parke Danforth; "After his Kind," John Coventry; "Prince Peerless," Margaret Collier; "A Step Aside," Charlotte Dunning; "Two College Girls," Helen Brown; "A Moonlight Boy," E. W. Howe; and "A Desperate Chance," J. D. Kelley.

History.—The civil war group takes precedence in point of numbers and importance, as indeed it must continue to do for several years to come. It divides itself naturally into history proper and biography. But there are many biographies, like the Grant memoirs, which would seem appropriately placed with the histories.

The late Gen. John A. Logan's "The Great Conspiracy," on the other hand, is history rather than biography, since, while devoted largely to the campaigns of the civil war, it enters into the preliminary plottings of politicians more fully than has ever been done before, and is marked by the author's strong individual peculiarities, although it may be inferred that some of its original Saxon strength has been editorially eliminated. "General George B. McClellan's Own Story of the War for the Union," published after his death, is a worthy monument to the memory of an officer who, whatever may have been his failings and failures, was an accomplished soldier and beloved by the rank and file of his army beyond all other commanders. General Pope's brief command of the Potomac Army is described in the "Virginia Campaign of 1862." "The History of the Second Army Corps in the Army of the Potomac," by Gen. Francis A. Walker, is perhaps the best of the corps histories. The author's excellent qualifications as a compiler and editor render it a model in many respects. "The Naval History of the Civil War," by Admiral David D. Porter, combines history with personal reminiscence, and official documents, in a bulky volume. "The Seventy-ninth Highlanders, New York Volunteers," by W. Todd; "The Fight for Missouri,"

by T. L. Snead; and Willis J. Abbott's "Blue-Jackets of '61," a spirited book for boys, are full of widely different types of interesting material. "The Volcano under the City," published anonymously, is the first stated attempt that has been made at writing the history of the draft riots in New York in 1863. It is a most impressive book for any American to read and ponder. Frank Wilkeson's "Recollections of a Private Soldier in the Army of the Potomac" is in the line of personal narrative, but is history nevertheless. With these should be mentioned "The German Soldier in the Wars of the United States," by J. G. Rosengarten; and H. W. Preston's "Documents illustrative of American History, 1606-1863," a highly valuable compilation. The Comte de Paris's account of the "Battle of Gettysburg" was republished in a volume by itself, from his "History of the Civil War." Another "History of the War with the South" is by Robert Tomes, and hardly a week passes that does not see the publication of some regimental or State history of more or less importance, each of which has its circle of interested and appreciative readers. Justin Winsor has finished the second and third volumes of his "Narrative and Critical History of America," a work so comprehensive in design and execution that it must be a guide to all future historical research concerning America. Mr. Bancroft has added to his remarkable list of works "A History of Alaska" and the fourth volume of "California." In this connection are histories of California, respectively, by J. Royce and T. H. Hittell; and Frederick L. Billon's "Annals of St. Louis," which traces the history of the city back to the time of its French founders. "Two Spies," and "Mary and Martha, the Mother and the Wife of George Washington," are added to the works of Benson J. Lossing. "The Rear Guard of the Revolution," by Edmund Kirke (J. R. Gilmore) is rich in local tradition. It treats of the campaigns of the mountain-men against the Britches at King's mountain and the adjacent country. Livermore's "The Republic of New Haven," and Butler's "A History of Farmington, Maine," are among the many local histories that are demanding special alcoves in the great libraries, and are already catalogued in the several State bibliographies.

C. E. Little's "Historical Lights" is intended as a guide for historical students, and should greatly economize time for those who are in the regular lines of research. In "Sacred Mysteries among the Mayas and Quichas" the author, A. Le Plongeon, is hardly limited by history, for he believes that some of the records point to an antiquity of more than 11,000 years. Dr. Henry M. Baird, the accomplished historian of the Huguenots, has brought out "The Huguenots and Henry of Navarre" in two handsome volumes, recounting the long struggle for religious freedom in France. "France under Mazarin" is by James Breck

Perkins, and Richard Lodge's "History of Modern Europe" extends from the Ottoman invasion to the Treaty of Berlin in 1878. "The Story of the Nations" series deserves mention. It was increased by nine volumes during the year, namely: "The Story of the Jews," by James K. Hosmer; "Chaldea," by Z. A. Ragozin; "Germany," by Baring-Gould and Arthur Gilman; "Carthage," by Church and Gilman; "Hungary," by Vámbéry and Heilprin; "The Moors in Spain," by Stanley Lane Poole and Arthur Gilman; "Spain," by E. E. Hale and his sister, Susan Hale; "Norway," by H. H. Boyesen; and "The Saracens," by Arthur Gilman. "Chivalric Days," by E. S. Brooks, admirably retells the immortal stories that are, with many grains of allowance, made to do duty as mediæval history.

In his more serious work, "The Creoles of Louisiana," George W. Cable preserves the vivacity that marks his lighter productions, and depicts a race and a location whose peculiarities are scarcely suspected by the majority of intelligent Americans. In "The Making of New England," the other extreme of our wide domain, Samuel Adams Drake has endeavored to adapt a species of object-teaching to the purposes of history. "Children's Stories of American Progress," by Henrietta C. Wright, are aimed in the same direction. "The Massacres of the Mountains," by J. P. Dunn, is a compilation not before attempted on a like scale, of all the Indian wars of the United States within the past half-century. "Outlines of Universal History," by Prof. George P. Fisher, of Yale College, is an historical reference-book of the highest value—a worthy addition to the author's previous works. Gen. James Grant Wilson's "History of the Protestant Episcopal Church in New York, 1785-1885," and G. W. Schuyler's "Colonial New York" are valuable additions to the local history of Church and State.

Biography.—The most important work of its class ever undertaken in this country is the "Cyclopedia of American Biography," edited by Gen. James Grant Wilson and Prof. John Fiske. The first volume, including names beginning with A, B, and C, appeared near the end of the year, and five others are in course of preparation. Portraits are given with praiseworthy frequency, and much information not hitherto accessible has been here brought together in a convenient and attractive form. Works of national importance and semi-historic in character are "Grant's Personal Memoirs," which have received an unprecedented popular welcome; "The Life of Gen. Winfield Scott Hancock," by F. E. Goodrich; and "Reminiscences of Abraham Lincoln by Distinguished Men of his Time," are edited by Allen Thordike Rice. W. O. Stoddard has written excellent lives of George Washington and of Ulysses S. Grant, and Col. T. W. Knox's "Life of Robert Fulton" is easily the best yet published. Here, too, should be mentioned Laura

C. Holloway's "Ladies of the White House," and Miss Ludlow's "Life of Mary Anna Longstreth," of Philadelphia. Cassius M. Clay, late United States minister to Russia, published the first volume of his memoirs. Three volumes have been issued of "The Lives of the Presidents," which, when all are told, will present a complete history of the United States in the shape of biographies. Ben: Perley Poore, a living compendium of Washington gossip, has brought out the first volume of his "Reminiscences of Sixty Years," and his contemporary in the same field, Charles Lanman, has written "Hap-hazard Personalities," a chain of reminiscences covering his long life in the capital. The autobiography of Martha J. Coston, entitled "A Signal Success," is in reality a biography of her husband, the inventor of the Coston signals, now used by most of the maritime nations, and the story of a once famous Washington belle. A "Life of Schuyler Colfax," by O. J. Hollister, recalled vividly the shock with which the country heard that Mr. Colfax was concerned in the Crédit Mobilier affair. Mr. Hollister's account of the matter somewhat modifies the popular verdict in the case. The "Memoirs and Letters" of Mrs. Dorothy Madison preserve the memory of one of the famous republican beauties of her day, and of contemporary interest are the "Memoirs of Mrs. Edward Livingston." The name of Mary Clemmer is still fresh in American literature, for she is remembered by the maiden name under which she won her literary reputation, rather than by that acquired in marriage. Her husband, Edward Hudson, himself a well-known journalist, has written an excellent biography of his late wife, entitled "An American Woman's Life and Work." The five volumes of "Actors and Actresses of Great Britain and the United States," by Brander Matthews and Lawrence Hutton, have involved a great deal of research. They include, it is believed, every noteworthy name from the earliest days of acting to the present time. "A Memoir of Prof. J. Lewis Diman," by Caroline Hazard, is a deserved tribute to his life and services. "Madame Mohr, her Salon and her Friends," by Kathleen O'Meara, is one of the cleverest biographical and social studies that have recently appeared.

In art biography should be noted Mrs. Schuyler Van Rensselaer's "Henry H. Richardson and his Works."

Philip Schaff contributes to religious biography "Saint Augustin, Melanchthon, Neander"; and James Freeman Clarke appreciatively writes a "Life of William Henry Channing," the Unitarian leader. W. A. Croffut is the author of "The Vanderbilts and the Story of their Fortune," suggestive of rich fields of investigation for American biographers. "The Life of Joel Barlow," by C. B. Todd, recalls the brilliant poet and diplomat of Revolutionary fame to a generation that has

well-nigh forgotten his existence. "The Life and Campaigns of Major-Gen. J. E. B. Stuart," the Confederate cavalryman, is among the best of the many similar narratives from the Southern side that have appeared since the civil war. It is by Major McClellan, a member of Stuart's staff.

Poetry.—The venerable John Greenleaf Whittier heads the list of poets with his "Saint Gregory's Guest." The quaint quality of his clear-cut verses contain many suggestions of the old vigor. "H. H.'s" "Sonnets and Lyrics" are probably the last verses that we shall see from her pen. Celia Thaxter's "Cruise of the Mystery"; Mrs. Sarah M. B. Piatt's "In Primrose Time"; Margaret J. Preston's "For Love's Sake"; Nora Perry's "New Songs and New Ballads"; Mrs. Whitney's "Holy Tides"; Elizabeth Akers's "The Silver Bridge"; Josephine Pollard's "Vagrant Verses"; Margaret Deland's "Old Garden"; Anna Katharine Green's "Risifi's Daughter," are among the best works from feminine pens. From C. P. Cranch, who, if not in the same generation with Whittier, is at least older than most of our present writers, we have "Ariel and Caliban." Edar Fawcett heads the younger men with "Romance and Reverie," marked by his usual incisive wit and clever versification. Clinton Scollard's "With Reed and Lyre"; "In the King's Garden," by James Berry Bensel; Peck's rollicking "Cap and Bells," and "In Bohemia," by John Boyle O'Reilly; "Children's Ballads from History and Folk Lore" is a selection from the pages of "Wide-Awake" of much that is best in verses and pictures. M. A. Lathbury is the author of "From Meadow-Sweet to Mistletoe," an artistically illustrated book for American children. "Flowers from Dell and Bower" contains enough original American work, although Shakespeare is represented, to justify its mention in this department. A new and complete edition of Longfellow's works, poetry and prose, is among the year's additions to the Riverside list. "The Minute-Man," commemorative of the Concord fight, is by Margaret Sidney (Mrs. Hester Lothrop), illustrated by Sandham. "Bye-o-Baby Ballads," by C. Stuart Pratt, with its colored illustrations, was among the holiday novelties. "Three Kings" is a Christmas ballad, by Mary Leland McLanathan, illustrated by Rosina Emmet. But the list of poets, more or less known to the public, must of necessity be cut short.

Of compilations there are several, some of the best being Browne's "Bugle Echoes" and Frank Moore's "Songs and Ballads of the Southern People, 1861-1865," which represent the popular songs of both sides during the civil war. In "Humbler Poets," Slason Thompson has brought together a large number of literally "fugitive" pieces from newspapers and periodicals, many of which have the mark of genuine poetry. "Through the Year with the Poets" is edited by Oscar Fay

Adams, who also published a noticeable volume of original poems, entitled "Post-Laureate Idyls." The "Poems" of Florus B. Plimpton, "The Poetical Works of Benjamin F. Taylor," Baxley's "Temple of Alanthus" and H. Bernard Carpenter's "Liber Amoris" may conclude the list.

Criticism and General Literature.—Shakespeare still occupies a large share of the attention of critics and commentators. Indeed, there are, as yet, no indications that he will ever be dethroned. We have, besides new editions, "Shakespeare and Spanish Prototypes" and "Shakespeare Society," by A. R. Frey; "Authorship of Shakespeare," by N. Holmes; "Shakespeare's England," by William Winter; "Shakespeare's Female Characters," by Edgar Fawcett; and "Familiar Talks on some of Shakespeare's Comedies," by E. W. Latimer. The New York Shakespeare Society has begun the publication of its papers, and the formation of Shakespeare clubs is of frequent occurrence wherever there is a literary circle.

Next to Shakespeare, Browning is perhaps the most popular subject of study. "Browning's Women," by Mary E. Burt; "An Introduction to the Study of Robert Browning's Poetry," by Hiram Corson; and a volume of "Outline Studies" of the same, from the Chicago Browning Society. Prof. Rolfe has aided in this direction by his "English Classics." Dr. F. H. Hedge's "Hours with the German Classics" is a work of permanent value for conscientious students of German; and a volume equally worthy, in a different line, is G. W. Cooke's "Poets and Problems." Andrew Lang's "Letters to Dead Authors," Abba Gould Woolson's "George Eliot and her Heroines," and G. Lansing Raymond's "Poetry as a Representative Art," are excellent guides to study in the directions indicated.

The list of books on general literature may fitly conclude with W. F. Dana's "Optimism of Ralph Waldo Emerson," which is, in fact, the Bowdoin prize essay on that subject.

The year has seen the publication of a large number of books bearing directly or indirectly upon art. Some of them are careful studies in the different departments, others are books of reference, others are reprints of standard works for the sake of new illustrations, and still others are prepared as a frame for some particularly good artistic work. The most important general work on art and artists that has been published in America is the superb "Cyclopedia of Painters and Paintings," edited by John Denison Champlin, Jr. Two volumes were brought out during the year, and two more will shortly follow.

Among the most attractive of the art publications is "A Book of the Tile Club," to which members of that famous association have liberally contributed with pen and pencil. A *de luxe* edition of one hundred copies, printed on Japanese paper and signed by the artists, was prepared for temptation of rich collectors. In

the same category may be mentioned an edition of "The Rubáiyát of Omar Khayyám," smaller and less costly than the first.

Frederick Crowninshield's "Mural Painting" is noteworthy in every sense as a strictly American art publication of practical utility, the author being among the most accomplished of contemporary mural painters.

"Stories of Art and Artists," by Clara Erskine Clement, was among the few art-books of the year designed especially for juvenile readers, but of permanent value to any one. "Youth in Twelve Centuries" is another "Juvenile," containing twenty-four ideal portraits of youthful race-types of both sexes. The context is furnished by "M. E. B." (Mrs. M. E. Blake) in the shape of short poems, one for each of the pictures.

"Notable Etchings by American Artists," with an essay by Ripley Hitchcock, records the progress in this country of this deservedly popular branch of fine art. "American Art" is a collection by S. R. Koehler, of twenty-five paintings, or rather of reproductions thereof, by American artists. They were selected with commendably good taste from the best public and private American collections. The same writer and critic published "Twenty American Etchings" in a handsome folio edition limited to three hundred and fifty copies. The context is mainly biographical.

Margaret E. Sangster contributes the poetry to accompany the lovely child-pictures collected by Frank French in "Home Fairies and Heart Flowers."

"Idyls and Pastorals" is the title of a handsome folio containing a collection of Celia Thaxter's poems written expressly for this volume, which is richly illustrated with photogravures from the work of American and foreign artists.

Kenyon Cox's illustrations of Rossetti's "The Blessed Damosel" afford an excuse for republishing that unique poem in a superb folio; and the same may be said of Abbey's drawings for "She Stoops to Conquer."

Fidelia Bridges's "Bird-Song Series" carries her charming studies of American song-birds into a permanent shape with appropriate poetical selections.

Irene Jerome repeats in "Nature's Hallelujah" her success of "One Year's Sketch-Book."

Poetical selections serve for context.

"Happy Hunting-Grounds" includes many of W. Hamilton Gibson's best essays, with great store of his matchless illustrations. The volume is uniform with "Pastoral Days."

Travel.—There was not during the year a very large increase in the number of important books of travel. Persia was treated by two Americans: S. G. W. Benjamin from the diplomatic and consular standpoint, and James Bassett from that of a missionary. The first is entitled "Persia and the Persians," and the second, "Persia, the Land of the Imams." This last covers a period of pioneer explora-

tion. Other contributions to Asiatic and Oriental travel are G. C. Pearson's "Flights inside and outside Paradise by a Penitent Peri"; Mrs. C. A. Mason's "Etchings in Two Lands"; A. C. Maclay's "Budget of Letters from Japan"; Edwin Joshua Duke's "Along River and Road in Fuh Kien, China"; and Mary L. Cort's "Siam, or the Heart of Farther India."

From Americans in England and on the Continent we have "The Chronicle of the Coach," by John Denison Champlin, Jr., being the clever record of a four-in-hand trip through some of the finest English counties, and "The Dark City," namely, London, by Alexander Richardson. A well-conceived tale of travel is "Two Pilgrims' Progress," with illustrations by the author, Joseph Pennell, one of the pilgrims. The other pilgrim was Mrs. Pennell, and their means of transit was a tricycle.

F. Hopkinson Smith is as happy with his pen as with his pencil, and the genial spirit with which he has written and illustrated "Well-worn Roads of Spain, Holland, and Italy" shows what can be done with old materials when they are treated *con amore*. "Carlsbad and its Environs" by J. Merrylees, "The Land of the Czar and the Nihilist," by James Monroe Buckley, and "Consular Reminiscences," by Horstmann, close the list.

"In the Bush and on the Trail" is a Frenchman's narrative of actual American adventure. A similar book, by Achilles Daunt, is a tale of exploration and adventure entitled "With Pack and Rifle in the Far Southwest."

A new and revised edition of Dr. Thompson's "The Land and the Book" deserves mention among new publications.

"Chōson: The Land of Morning Calm," is by Percival Lowell, late foreign secretary to the Corean embassy. The book is the result of a long residence in Corea, one of the few remaining quarters of the globe with which American readers are unfamiliar.

Central and South America receive their share of attention from several Northern travelers, namely, Helen J. Sanborn, in "A Winter in Central America"; Solomon Bulkley Griffin, in "Mexico of To-day"; James W. Wells, in "Three Thousand Miles through Brazil"; E. J. M. Clemmens, in "The La Plata Countries of South America."

Books have been published concerning the different parts of the United States as follow: "Our New Alaska," by Charles Hallcock, and "Our Arctic Province Alaska and the Seal Islands," by Henry W. Elliot. Both are exceedingly entertaining books. "Southern California" is described by T. S. Van Dyke; and "H. H.," in her posthumous "Glimpses of Three Coasts," touches upon California and Oregon as well as upon Sweden and Norway and Great Britain. G. W. Wingate's "Through the Yellowstone Park on Horseback" adds to our appreciation of that wonderful region. "The Winnipeg Country," anonymously pub-

lished, describes a tour in that seldom-visited division of British America. "Santa Barbara and around there," by Edwards Roberts, will no doubt attract additional visitors to that favored coast. If every scoffer at our hard-worked little army could be made to read "An Apache Campaign in the Sierra Madre," by Capt. John G. Bourke, U. S. A., there might be a more appreciative popular sentiment regarding our soldiers.

R. J. Cleveland's "Voyages of a Merchant Navigator" and W. Wyatt Gill's "Jottings from the Pacific" will be read with interest by lovers of the sea. Lieut. Greely's "Three Years of Arctic Service" is among the most important books of exploration published. While it unfortunately recalls much that is distressing, it places on record many deeds of skill, daring, endurance, and discipline, of which every American may well be proud.

Political, Social, and Mental Science.—These fields of study and speculation seem to have been particularly attractive to American authors during the year under consideration, probably owing to the labor agitations of the day, to the generally unsettled condition of politics at home and abroad, and to the interest of intelligent people in economics and international comity. From a mass of material the following titles are selected as conspicuous in the American list:

"Aristocracy in England," by Adam Badeau, is an entertaining narrative of an American's experience abroad in an official position. His elucidation of court etiquette is at once amusing and perplexing to the republican mind. "Social Studies in England," by Sarah K. Bolton, should be read in connection with Gen. Badeau's book. It has not the official diplomatic stamp, but is entertaining nevertheless. "Copyright, its Law and its Literature," by R. R. Bowker, is of interest and value to all literary workmen; and his "Economics for the People," "Economic Fact-Book," and "Primer for Political Education," contain information that every voter should possess. "Twenty Years of Congress," by James G. Blaine, is probably the most brilliant book of individual reminiscence and political history that has appeared in this country. It is not unjust to say that it is as interesting as a novel—that being the modern criterion by which the popularity of a book must be judged.

The list that follows contains most of the noteworthy new books of this class:

"The Labor Problem," William E. Barnes, editor; "Studies in Modern Socialism and Labor Problems," by Rev. T. Edwin Brown; "Socialism and Christianity," by A. J. F. Behrends; "The Philosophy of Wealth," by J. B. Clark; "Three Decades of Federal Legislation," 1855-'85, by S. S. Cox; "Triumphant Democracy," by Andrew Carnegie; "The Labor Movement in America," by Prof. Ely; "Protection or Free Trade," by Henry George; "Manual Training," by C. H. Ham; "The

Railways of the Republic," by J. F. Hudson; "Ancient American Politics," by Hugh J. Hastings; "Protection vs. Free Trade," by H. M. Hoyt, an excellent compendium of the arguments against opening the way to unrestricted foreign competition; "The South," by A. H. McClure; "The Labor Movement the Problem of To-Day," by George E. McNeill; "The Unfair Distribution of Earnings," by W. V. Marshall; "A Plain Man's Talk on the Labor Question," by Simon Newcomb; "Ten Dollars Enough," by Catherine Owens; "Labor, Land, and Law," by W. A. Phillips; "American Diplomacy and Furtherance of Commerce," by Eugene Schuyler; "Our Country," by Rev. Josiah Strong, D. D.; "History of the Appointing Power of the President," by Lucy M. Salmon; "The Family," by Charles F. Thwing and Carrie F. B. Thwing, his wife; "The Protective Tariff Delusion," by Marion Todd; "Financial History of the United States from 1861 to 1885," by Albert S. Bolles; "Class Interests," by the author of "Conflict in Nature and Life"; "Protection to Home Industry," being from lectures on the subject by Prof. R. E. Thompson.

Not more than two thirds as many books, all told, were published during the year in the department of philosophy and mental science, and of these very few originated on this side of the ocean. The three most notable ones are practically on the same topic, namely: "Psychology," by Dr. James McCosh; "Human Psychology," by E. James; and "Elements of Psychology," by James Sully. These do not adequately represent the activity in the direction of metaphysics, for the reviews and periodicals show that mental science is by no means abandoned by our home philosophers.

Science.—"Earthquakes and other Earth Movements," by John Milne, professor in the Japanese Imperial College, proved a timely study in view of subsequent seismic disturbances.

Text-books and essays on the subject of electricity hold a conspicuous place in the scientific book-lists. Park Benjamin's "Age of Electricity," A. L. Raney's "Uses of Electricity in Medicine," G. M. Beard's "Medical and Surgical Uses of Electricity," are among the American publications.

The United States Government has issued two important works on "The Fisheries of the United States," which are of especial interest at present. Other works touching upon the animal kingdom are French's "Butterflies of the Eastern United States," and C. C. Abbott's "Upland and Meadow." Another highly creditable Government publication is "Mining Monographs of the United States Geological Survey."

"The Origin of the Fittest," by Prof. E. D. Cope, is a study in evolution that has invited the attention of Darwinians. "The Botany of the Rocky Mountains," by J. M. Coulter, in-

creases and defines our knowledge of the flora of that imperfectly known and most attractive region.

Theology and Religion.—In view of the insatiable and seemingly almost universal demand for ephemeral and essentially worldly literature—more than enough, apparently, to overstock all the markets in the world—it is surprising to take account of the number of books touching the most profound and serious of all topics. The list embraces a majority of the best thought and teaching in this field. "In Aid of Faith," by Lyman Abbott; "God's Revelations of Himself to Men," by the Rev. S. J. Andrews; "The Two Books of Nature and Revelation collated," by the Rev. G. D. Armstrong, D. D.; "History of the Baptists," by Rev. T. Armitage; "The Simplicity that is in Christ," by Rev. Leonard W. Bacon; "Evolution and Religion," by Henry Ward Beecher; the fourth series of Rev. Phillips Brooks's "Twenty Sermons"; "Life and Christ in the World," by Rev. Arthur Brooks; "Messianic Prophecy," by Rev. C. A. Briggs, D. D.; "Soundings," by Rev. Mortimer Blake; "The Miraculous Element in the Gospels," by Alexander Balmain Bruce; "Light on the Hidden Way," with an introduction by James Freeman Clarke; "Modern Unitarianism," by James Freeman Clarke and Joseph Allen; "The Fourth Gospel," by James Freeman Clarke, also "Every-Day Religion" and "Vexed Questions in Theology" by the same author; "The Orient," by Rev. Joseph Cook; "The Gospel and Philosophy," by Rev. Morgan Dix, D. D.; "Universalism in America," vol. ii., by the Rev. R. Eddy, D. D., a comprehensive history; "Applied Christianity," by Washington Gladden; "The Gospel of John," by A. Hovey; "Sermons," by "Sam" Jones, the Southern evangelist; "A Study of Primitive Christianity," by L. G. Janes; "Eventful Nights in Bible History," by Rev. Alfred Lee; "Plato and Paul," by J. W. Mendenhall; "D. L. Moody at Home," and "Ten Days with D. L. Moody," anonymous; "The Wisdom of the Apocalypse," by McIlvaine; "The World and the Logos," by Bishop Hugh Miller (Bedell Lectures); "Silent Times," by Rev. J. R. Miller; "Bible Warnings," by Richard Newton; "Mechanics and Faith," by Charles Talbot Porter; "My Study," by Rev. Austin Phelps; "Woman in Sacred Song," by Eva Munson Smith; "Ham-Mishkan, the Wonderful Tent," by Rev. D. A. Randall, D. D.; "The Doctrine of Endless Punishment," by Rev. W. G. T. Shedd, D. D.; "Messianic Expectations and Modern Judaism," by Solomon Schindler; "Footprints of the Saviour," by Rev. Julian K. Smyth; "Right Life," by Rev. Joseph A. Seiss, D. D.; "Social Problems," by Minot J. Savage; "Spinoza and his Environment," by Rev. Henry Smith; "Sketch of the Life of Apollonius of Tyana," by D. M. Treadwell; "Joseph, the Prime Minister," by Rev. William M. Taylor, D. D.; "The Marriage Ring," "Shots at

"Sundry Targets," "The Battle for Bread," and "Tabernacle Sermons," by T. De Witt Talmage; and, from an antipodal ecclesiastical standpoint, "Husband and Wife," by Prof. George Zabriskie Gray; "The People and Preachers in the Methodist Episcopal Church," by James A. Wright; "Ancient Cities," by W. Burnet Wright; "Progressive Orthodoxy," by the editors of the "Andover Review"; "International Sermons," by eminent preachers of the Church in England and America; "Sermons on the International Sunday-School Lessons for 1887," by the Monday Club.

Law.—Without attempting to enumerate bound volumes of digests and reports, which threaten to overflow the possible limits of libraries, the most important may be mentioned. The first volume of H. C. Adams's "Judicial Glossary" (A to E) and at least two more will be required to complete the work. It is in the nature of a cyclopaedia of celebrated law maxims, and must have involved a great deal of patient, accurate work. J. K. Kinney's "Digest of the United States Supreme Court" has appeared, and makes good its promise of usefulness. Of general interest are Tiedman's "Limitations of the Police Power of the State by the Federal Constitution," Gray on "Perpetuities," Remsen on "Intestate Succession," and Martindale's "Unclaimed Money, Lands," etc. In the same group as this last are Jones's "Forms of Conveyancing," Austin's "Farm Law," and "Wynkoop's "Vessels and Voyages as regulated by the Federal Constitution and Treasury Decisions." G. Merrill's "Studies in Comparative Jurisprudence," and new editions of the standard works on international law, are of especial value. Another important addition to the interminable list of digests is F. J. Stimson's "American Statute Law." The number of books on "Contracts" indicates the growing importance of that department of the current law literature. Among them are Ralston on "Discharge of Contracts," Bates on "Limited Partnership," Dewey on "Contracts for Future Delivery," Greenhood on "Public Policy in the Law of Contracts," Randolph on "Commercial Paper," Jones on "Construction of Commercial and Trade Contracts," and Usher on "Sales of Personal Property."

Accidents on land and sea are treated in "Collisions of Ships in United States Waters," by W. P. Preble; "The Law of Railway Accidents," by C. S. Paterson, and "The Law of Negligence," by J. H. Deering. Allied to these is C. E. Grinnell's "Law of Deceit."

Wade on "Attachment and Garnishment," McConnell on the "Trustee Process," Morrill on "Competency and Privilege of Witnesses," Wood on "Practice Evidence," Hawes on "The Jurisdiction of Courts," and Bailey on "The Onus Probandi," with several works on forms and particular remedies, have an important bearing on the tendency of practice.

Patent law is assuming great importance,

and the most considerable addition to the patent lawyer's library is "Federal Cases on Patents, Copyrights, and Trade-Marks," edited by W. D. Baldwin and Woodbury Lowry. It contains the more important decisions in full and a digest of minor cases. Duryee on "Assignments of Patent Rights" is a small digest, in a special field, and B. V. Abbott has edited two volumes containing the "Patent Laws of All Nations."

"Tact in Court," by J. W. Donovan, while hardly to be classed as an authority, contains many valuable hints suggestive alike to lawyer and layman. "Among the Lawyers," by Edmund Alton, is a contribution to the general literature of the guild.

Our list may close with reference to J. P. Gray's "Rule against Perpetuities," a textbook that embodies a valuable study of the American law of property.

Medicine.—The year was not prolific of new books, if quantity alone is considered. There were published in the United States, however, a number of special volumes highly creditable to the profession, and the work of compilation and codification has commanded the services of many competent workers.

Bearing upon diseases of the brain are J. L. Corning's "Local Anaesthesia in General Medicine; also, "Brain-Rest," by the same author. With these, W. D. Granger's "How to care for the Insane" should have a place. F. Treve's "Manual of Surgery" is a compilation in three volumes of monographs by acknowledged authorities. R. T. Morris writes for beginners a surgical manual entitled "How we treat Wounds To-Day." It treats especially of the comparatively modern methods of antiseptic surgery. Another work by the same author is "Surgical Diseases of the Kidney." Lane's "Manual of Operative Surgery" is an excellent condensation of practical information with which every general practitioner should be, but not always *is*, familiar.

Dr. E. G. Loring's "Text-Book of Ophthalmoscopy," Part I, is a profound and admirable work, recounting all the latest improvements in instruments, of some of which he is himself the inventor, and describing minutely the eye in its normal and diseased condition. Prof. Weisse, under the title of "Practical Human Anatomy, a Working Guide for Students of Medicine and a Ready Reference for Surgeons and Physicians," has condensed the acquirements of his professional life. Illustrations occupy a large part of the book.

Delafield's "Studies in Pathological Anatomy" have reached "Chronic Phthisis" in the second volume. The discussion of this dreaded disease will be found well-nigh exhaustive.

"Buck's Reference Hand-Book of the Medical Sciences" has reached its second volume, professedly embracing the entire range of scientific and practical medicine.

"The Curability of Insanity" is a series of intelligent studies of especial interest to neu-

rologists, as tending to correct many errors that are common even among members of the profession. C. W. Cutler, in his "Manual of Differential Diagnosis," has provided an excellent hand-book for students. A. Worcester's "Monthly Nursing" is not strictly intended for professional use, but physicians are often glad of such manuals to place in the hands of those seeking instruction. Some hints on the phenomena of heredity may be found in "Outlines of Lectures on Physiology," by Dr. Mills, of McGill University.

Dr. Billings's report on the "Mortality and Vital Statistics of the United States, as returned at the Tenth Census," is a work involving vast labor and a highly commendable thoroughness in statistical method. It is one of the most creditable works issued by the Government. J. W. Stickler has written "The Adirondacks as a Health Resort," citing instances of benefit in cases of pulmonary disease.

The increasing scope of professional publications no doubt turns the current of professional writing to the direction of detached papers. These, however, if of any permanent value, are eventually gathered into volumes, and the world is in no way the loser. The Surgeon-General's office at Washington calls for a large amount of highly valuable work, and the undertaking of cataloguing the library of that office, deserves especial commendation.

Miscellaneous.—A few books of interest to special groups of readers remain to be noticed: "The Law of Field-Sports," comprising the game-laws of all the States, by George Putnam Smith; "The Boat-Sailor's Manual," by Edward F. Qualtrough; "Fly-fishing and Fly-making for Trout," by J. Harrington Keene; "The American Salmon-Fisherman," by H. P. Wells; "Whist Scores and Card-Table Talk," by H. Rheinhardt.

Statistics.—In the following table, compiled by the "Publishers' Weekly," the issues of the minor class of cheap libraries have been omitted, as they are for the most part reprints, and hardly to be classed as books. Six hundred are included from the cheap libraries. The books of 1885 are included for comparison:

CLASS.	1885.	1886.
Fiction.....	934	1,080
Law	431	469
Juvenile Books.....	883	458
Literary History and Miscellany.....	143	388
Theology and Religion.....	435	377
Education, Language.....	225	275
Poetry and the Drama.....	171	220
History.....	137	182
Medical Science, Hygiene.....	188	177
Social and Political Science.....	163	174
Description, Travel.....	161	159
Biography, Memoirs.....	174	155
Fine Art and Illustrated Books.....	140	151
Physical and Mathematical Science.....	92	148
Useful Arts.....	100	112
Sports and Amusements.....	70	70
Domestic and Rural.....	80	46
Humor and Satire.....	18	17
Mental and Moral Philosophy.....	25	18
Total.....	4,030	4,676

From the report of the Librarian of Congress, it appears that no fewer than 7,136 of the books published in 1886 have failed to perfect title to copyright through non-compliance with the law requiring two copies of each publication. This should be taken as a warning by publishers and authors. The figures herewith include only the actual number of publications. The official return is twice as large, both copies of each publication being counted:

CLASS.	ENTRIES.		DEPOSITS.	
	1885.	1886.	1885.	1886.
Books	9,986	.....	7,214	8,352
Periodicals	6,060	.....	6,469	5,339
Dramatic compositions ..	625	.....	155	123
Musical compositions ..	6,808	.....	6,441	6,001
Photographs	963	.....	929	1,275
Chromos and engravings ..	1,396	.....	1,319	1,584
Maps and charts	1,897	.....	1,790	1,183
Prints	80	.....	70	186
Paintings	94	.....	.....	19
Designs	486	.....	{ 42	{ 19
Drawings, etc	15	.....	5	5
Total	25,410	31,168	24,430	24,082

LITERATURE, BRITISH, IN 1886. The list of the publications in Great Britain during the year shows no very marked improvement on 1885 as regards works of importance, although it covers a wider surface. More books appeared in all the departments, excepting perhaps that of poetry, and a more comprehensive field of subjects was covered. Especially to be noted is the tendency toward out-of-the-way topics, and the opening up of new resources through translation. Thus occultism has found frequent expression not only in philosophical treatises, but largely in fiction; the movement of exploration and colonization has brought forth a crop of books descriptive of lands hitherto little known, and the more recondite natural phenomena have been enthusiastically investigated. In the department of *belles-lettres*, strictly, there has been exhibited but a waning interest, except where this subject, like others, could be made the occasion for inquiry and technical review. Thus, biography, autobiography, and analytical criticism have been fruitful, and the tendency has been toward a close and thorough examination of the lives and works of authors rather than the reproduction of their writings. Such subjects, also, as Buddhism, supernaturalism, and mental, moral, and physical evolution, have encountered unusual scrutiny, so that altogether the year may be considered as exhibiting in British literature an anxious and thoughtful spirit of curiosity and investigation more than a desire to amuse or to interest the reader.

Fine Arts.—Of works strictly confined to the theory and practice of architecture, painting, sculpture, and music, while not very many were published during the year, those that did see the light were generally of a high character, and the field of illustration showed a marked advance in beauty and originality of design and excellence of execution.

Prominent among such works was the autotype reproduction of one hundred of the prints of the renowned Bartolozzi, the Florentine engraver, who was the grandfather of Madame Vestris. A work on "Fifteenth-Century Italian Ornament," by Vacher; Everitt's "English Caricaturists of the Nineteenth Century"; "Ladies' Old-Fashioned Shoes," by Greig; and "A Book of Fac-similes of Monumental Brasses on the Continent of Europe," by Creeny, are also to be included in this class. In technical art, of a sort, may be mentioned Müntz's work on "Tapestry," translated by Davis; Lady Alford's "Needlework as Art"; the seventh edition, illustrated, of Chaffers's "Marks and Monograms on European and Oriental Porcelain"; and Church's "Hand-Book of English Porcelain."

Architecture was represented by Mr. Francis J. Parker's work on "Church-Building"; R. W. and J. W. Clarke's "Architectural History of Cambridge University, England"; and William Burges's "The House" and "Designs." Mr. Ruskin began a new series of monographs for the young on the Cathedral of Amiens and the remains at Florence. Among technical books on painting there were Nutter's "Interior Decoration," Field's "Colors and Pigments for the Use of Artists," and Collier's "Manual of Oil-Painting."

To conclude this department there should be mentioned the "Early Flemish Artists" of Conway, Audesley's "Ornamental Arts," and Anderson's "Pictorial Arts" of Japan. Philip Gilbert Hamerton produced "Imagination in Landscape-Painting," and S. R. Koehler an "Essay on the Recent Development in American Art."

A few special books on music and the drama were published, including Rockstro's "General History of Music," Upton's "Woman in Music" and a work on the "Standard Oratorios," and Archer's "About the Theatre."

History.—In archaeology and cognate subjects were published during the year Torr's "Rhodes in Ancient Times," Middleton's "Ancient Rome in 1885," Mr. Thompson Watkin's "Roman Cheshire," Leggett's "Notes on the Mint-Forms and Coins of the Mohammedans from the Earliest Period to the Present Time," and two new volumes of Sir Walter Elliott's "International Numismata Orientalia."

Ancient history has been considered in "Assyria," by Prof. Sayce; by Rev. W. B. Wright, in "Ancient Cities"; and Lady Magnus, in "Outlines of Jewish History." Percy Thorpe has given us a "History of Japan"; Anglo-Egyptian history is covered by "Egypt and the Sudan" of Prince Ibrahim-Hilmy, and Major de Cosson's "Days and Nights of Service at Suakin."

In ecclesiastical history we have Hore's "The Church in England from William III to Victoria," Gillon's "Literary and Biographical History of English Catholics" from 1534 to the present time, Amherst's "History of Catholic Emancipation and the Catholic Church in

the British Isles from 1771 to 1820," Rev. Mandell Creighton's hand-books of "Epochs of Church History," Dr. Edzar's "Old Church Life in Scotland," Dr. Anderson's "Scotland in Pagan Times," and, as an addition to Scotch history not ecclesiastical, Mitchell's "Scottish Expedition to Norway in 1612."

General English history begins with Mr. Spencer Walpole's conclusion, by the publication of vols. iv and v, of his "History of England from the Conclusion of the Great War in 1815"; Doyle's "Official Baronage of England from 1066 to 1885," with 1,600 illustrations, is issued in three quarto volumes; Arnold's edition of "Clarendon's History of the Rebellion" has reached its sixth volume; Prof. Morris continued his "Age of Anne," with an account of "The Early Hanoverians"; and John Ashton published, in two volumes, "The Dawn of the Nineteenth Century in England." Irish history supplied Gavan Duffy's "League of North and South," an episode of 1850-'54, and a second edition of O'Connor's important work.

English constitutional history received a number of notable additions during the year. Conspicuous among these were Sir W. R. Anson's "Law and Custom of the Constitution"; Scruton's "Influence of the Roman Law on the Law of England"; Gneist's "History of the English Constitution," a translation, in two volumes; a translation of the same author's "English Parliament in its Transformations through a Thousand Years"; Scottowe's "Short History of Parliament"; the second volume of Lucy's "Diary of Two Parliaments"; and Grego's "History of Parliamentary Elections and Electioneering in the Old Days."

There was rather a full list of works on English local history, including another volume of Hamilton's "Calendar of State Papers relating to Ireland, 1588-'92"; a volume of "Lord Gower's Dispatches," he being ambassador at Paris, 1790-'92; third volume of the "Lauderdale Papers"; and the first volume of the "Middlesex County Records." More closely local were Bunce's "History of Birmingham," Douthwaite's "History and Associations of Gray's Inn," L'Estrange's "Chronicles of the Palace and Hospital of Greenwich," Mr. James Parker's "Early History of Oxford" and Morley's work on the same subject, and Gomme's "Literature of Local Institutions."

Finally, on Continental European history, there were Lodge's "History of Modern Europe"; W. S. Lilly's "Chapters in European History"; Mr. Freeman's two lectures, "Greater Greece" and "Greater Britain," and "George Washington, the Expander of England"; Barlow's "The Normans in South Europe"; Mr. Morse Stephen's "History of the French Revolution"; Lalanne's edition of Fauriel's "The Last Days of the Consulate"; and Mr. Kershaw's monograph on "Protestants from France in their English Home."

Essays.—In this department must be included the books of the year on general literary sub-

jects and language. W. Scherer's "History of German Literature," translated by Mrs. Conybeare and edited by Max Müller, was the most important literary history of the year. Mr. F. B. Jevons published a "History of Greek Literature from the Earliest Period to the Death of Demosthenes," and Curtius's "Principles of Greek Etymology" was translated by Wilkins and England, and published in two volumes. Strong and Meyer's "Outlines of a History of the German Language," and Herford's "The Relations between English and German Literature in the Sixteenth Century," are both important works. Douse published an essay on "The Gothic of Ulfilas," and Sweet and Whitney, respectively, primers of Icelandic and Sanskrit. Morrison's "Manual of English Literature" and the "Roxburghe Ballads" (Part I, vol. vi) were more distinctly literary.

The Oriental languages and literature received more than usual attention during the past year. Concerning Madagascar there were published "A Madagascar Bibliography" by Sibree, and "A New Malagasy-English Dictionary" by Richardson. India was represented by Col. Yale's "Glossary of Anglo-Indian Colloquial Words and Phrases," and, in more learned effort, by three additions to the translations of "The Sacred Books of the East," being "The Gaina Sūtras," translated by Jacobi; "The Kullavegga," translated by Rhys David and Oldenburg; and "The Dharmasamgraha," edited by Kasawara, a Japanese Buddhist priest. These are issued by the Oxford Clarendon Press. Libraries and the press have been the subjects of two or three interesting works. Mr. Christie published the history of "The Old Church and School Libraries of Lancashire," Mr. T. Mason the "Public and Private Libraries of Glasgow," Mr. Nebauer published a "Catalogue of the Hebrew Manuscripts in the Libraries of Oxford"; and the "Catnach Press," which was an establishment at one time famous in England, has been fully described in an illustrated volume by Mr. Hindley. Legendary literature and folk-lore contributed largely to the year's list of publications. Mr. Theall published "Kaffir Folk-Lore," Mr. Vicary "A Stork's Nest," the Countess Martinengo-Cesaresco "Essays in the Study of Folk-Lore," Charlotte Burne "Shropshire Folk-Lore," Mariana Monteiro "Legends and Popular Tales of the Basque People," and Harley's "Moon Lore," Bassett's Legends and Superstitions of the Sea and Sailors," and Gould's "Mythical Monsters," complete the list.

Translations of the classics were numerous, including three different versions of Homer's "Iliad," by Cordery, Way, and Leaf; Virgil's "Æneid," by W. J. Thornhill; Cicero's "Correspondence" and "De Natura," by Tyrrell and Mayor. Sir Stephen De Vere and Herbert Grant translated Horace's "Odes," R. C. Jebb performed the same office for the "Plays and Fragments of Sophocles," T. Hodgkin produced a condensed translation of the "Varia Epistole

of Cassiodorus," and a translation of the "Institutes of Justinian" was prepared by Drs. Abdy and Walker. Irish classics were represented by Prof. Bugge's translation of "Merugud Uilix Maice Leirtis," the Irish Odyssey, and Sir Richard F. Burton's marvelous translation of the "Thousand and One Nights" reached its tenth and concluding volume. To complete the list of translations, Sir Theodore Martin issued the second part of Goethe's "Faust."

In literary essays and criticisms there were a number of notable works published, including a new volume ("Othello") of Mr. Furness's variorum edition of Shakespeare; the sixth edition of Mr. Halliwell-Phillipps's "Outlines"; "Othello and Desdemona," a critical essay by Dr. Ellits; and Mr. Fleay's "Chronicle History of the Life of Shakespeare." There was issued a new edition of Miss M. F. Rossetti's "Shadow of Dante," and that of Pope's works, with Elwin and Courthope's notes, was nearly completed. The new English Shelley Society began several series of publications, and Prof. Dowden's "Life of Shelley" was one of the most important and interesting biographical and critical works of the year. An essay on Victor Hugo by Mr. Swinburne, and others on Browning by Corson and Rolfe, with one on Tennyson by the latter writer, were also valuable contributions to current literary criticism. A collection of "Essays on the Poets" was published by the Hon. Roden Noel. Mr. G. W. Cooke in his "Poets and Problems," and Mr. Andrew Lang in "Letters to Dead Authors," combined humor with criticism. This department closes with Mr. Frederic Harrison's clever work on "The Choice of Books."

Biography.—Among the more important biographical works of the year should be mentioned Mr. Lowe's "Historical Biography of Prince Bismarck," Mr. Thompson's "Public Opinion and Lord Beaconsfield," Mr. Barnett Smith's "Prime Ministers of Queen Victoria," Lord Beaconsfield's "Correspondence with his Sister," Lord Nelson's "Letters and Dispatches"; Sir Henry Gordon's memoirs of his brother, "Chinese Gordon," Major Walford's "The Parliamentary Generals of the Great Civil War," and William Gisborne's New Zealand's "Rulers and Statesmen" from 1840 to 1885. In literary biography and autobiography, there were Findlay's "Recollections of De Quincey," Edmund Lee's "Story of Dorothy Wordsworth," Ruskin's "Præterita," being the beginning of his autobiography, Mr. Tupper's "My Life as an Author," Amiel's "Journal," and "Thoughts of the Abbé Roux," translations, Sir Francis Doyle's "Reminiscences and Opinions," Dr. Russell's "Reminiscences of Yarrow," the "Hayward Letters," and Rev. James Pycroft's "Oxford Memories." Works of a more general character are Jerningham's "Reminiscences of an Attaché," being experiences while connected with the British embassy in Paris during the second empire;

Oxonham's "Memoirs of Lieut. De Lisle"; Comte de Castellane's "Souvenirs of Military Life in Algeria," translated by Margaret Lovett; "Memorials" of Sir Herbert Edwardes, an officer distinguished in the Indian service; a new edition of Lord Herbert's "Autobiography"; Hobart Pasha's "Sketches"; Croom Robertson's work on the philosopher Hobbes; "The Radical Pioneers," by Daly, and "English Letters and Letter-Writers," by Williams; and new volumes of the "English Worthies" series, including Marlborough, Admiral Blake, Lord Shaftesbury, Sir Walter Raleigh, Ben Jonson, and Sir Richard Steele. The lives of Sir Henry Raeburn and Giovanni Dupré were the principal contributions to art biography.

The "Letters of George Sand" were translated and edited, in six volumes; Sir Ronald Gower wrote a sketch of Marie Antoinette; Miss Stewart "A Life of Mary Queen of Scots"; and Mr. Round a "Critical Essay on Anne Boleyn." Mr. Scott published his Hulsean prize essay on "Ulfilas, Apostle to the Goths," Mr. Collins an historical study of "Bolingbroke and Voltaire in England," Wilkinson his "Reminiscences of the Court and Times of Ernest, King of Hanover," Mr. Bettany two volumes of sketches of "Eminent Doctors," and Mr. Leslie Stephen's "Dictionary of National Biography" reached its tenth volume.

Poetry.—The only poetical writer of note who published anything original during the year was Lord Tennyson, whose "Locksley Hall Sixty Years After" was the subject of mingled praise and criticism. Mr. Coventry Patmore produced a collective edition of his "Poems," that revived public interest in a once popular writer; Miss A. Mary F. Robinson published "An Italian Garden"; Justin McCarthy appeared in "Hafiz in London," and Ernest Myers in "The Judgment of Prometheus." Mr. Browning published "Parleyings with certain People of Importance in their Day." On the whole, the poetic presentation was even unusually meager.

Fiction.—The list of novels by British writers was large, but included no really first-class work, though "The Silence of Dean Maitland," by "Maxwell Grey," a new writer, said to be a woman, attracted general attention, and is certainly a remarkable first attempt. The most strikingly popular novel was Mr. Stevenson's "Strange Case of Dr. Jekyll and Mr. Hyde"; after that came H. Rider Haggard's "King Solomon's Mines," and Stevenson's "Kidnapped," Anstey's clever skit "A Fallen Idol," Grant Allen's "Babylon" and "For Mamie's Sake," and George MacDonald's "What's Mine's Mine." Wilkie Collins published two works, "The Evil Genius" and "The Guilty River," neither of which added to his reputation, and Mr. Hardy's "Mayor of Casterbridge" was considered as below the standard of his previous works. A posthumous work by the late Hugh Conway, "A Cardinal Sin," was of about the caliber of its

predecessors. Miss Edna Lyall tempted the public with no fewer than three books—"We Two," "Won by Waiting," and "In the Golden Days." Justin McCarthy "collaborated" in "The Right Honorable" and "Our Sensation Novel." Mr. Mallock produced "The Old Order Changes," Jean Ingelow "John Jerome," and Mr. Norris three books—"Her Own Doing," "A Bachelor's Blunder," and "My Friend Jim," not one of which will live, save in the public libraries. Ouida's "House Party" possessed all of the faults and none of the merits of her works; Mrs. Craik's "King Arthur" was found to be a very attractive novel, based on rather a novel plot. Miss Braddon's "One Thing Needful" was enormously advertised, but attracted little attention. Christie Murray published "Cynic Fortune," Miss Yonge "Chantry House," "Astray," and "A Modern Telemachus," Mrs. Oliphant "A House Divided against Itself" and "A Country Gentleman and His Family," Farjeon "Three Times Tried," Julian Corbett "The Fall of Asgard," Mr. Sala "Captain Dangerous," Mr. Payn "The Heir of the Ages," Mr. Fenn "The Vicar's People," and Mr. Shorthouse a weak book, "Sir Percival."

Theology.—The number of religious publications during the year was large. Farrar's "History of Interpretation," and Briggs's "Messianic Prophecy," Murphy (of Belfast) on "Daniel," Kuennen's "Inquiry into the Origin and Composition of the Pentateuch and Joshua," translated by Wicksteed, and Milligan on the "Revelation of St. John"—are the more noteworthy explanatory works and commentaries. Randall on the "Tabernacle," and Paine on "The Temple of the Hebrews," are also valuable for elucidation; so are Dr. C. Taylor's "Illustrations from the Talmud," and Tuck's "Hand-Book of Biblical Difficulties." Joyce has edited the Acts of the Church of England from 1531 to 1585; Burbridge published a history of "The Liturgies of the Church," and Cunningham his Hulsean Lectures on "St. Austin, and his Place in the History of Christian Thought." Lechler's "Apostolic and Post-Apostolic Times" was translated by Davidson, and Dixon's "History of the Church of England" reached its third volume. Perrin's "Religion of Philosophy," Conn's "Evolution of To-Day," Mendenhall's "Plato and Paul," and Platt's "Philosophy of the Supernatural," are of the nature of religio-philosophical works.

Among collections of sermons were those of Dean Church, of St. Paul's, London; Dean Goulburn, of Norwich, on "Holy Week"; Bishop Alexander on "The Great Question"; and a volume by Haweis, of St. James's, Marylebone, London. Concluding this subject, and on religions not Christian, were Hughes's "Dictionary of Islam," Legge's translation of "The Texts of Confucianism," and Wherry's "Commentary on the Qurán," second and third volumes.

Voyages and Travels.—The two notable books

of travel for the year were Mr. Froude's "Oceana," recounting his trip to Australia and New Zealand; and the account by the young Princes Albert Victor and George, of "The Cruise of her Majesty's Ship Bacchante." South American journeying was described in Mr. Wells's "Three Thousand Miles through Brazil," and Mr. Dent's "A Year in Brazil." Of America in general, Florence Marryat wrote in "Tom Tiddler's Ground," and Mr. Edward Money in "The Truth about America," the latter of which has been sharply criticised in the English reviews as belying its title.

Baron Hübner published "Through the British Empire," Mr. Walker "The Azores," and Mr. Clark Russell "A Voyage to the Cape." Miss Colenso and Col. Tulloch wrote on "Natal and Zululand," Mr. J. J. Aubertin on "Six Months in Cape Colony and Natal," and Mr. Farini "Through the Kalahari Desert." Mr. Stutfield published a "Twelve Hundred Miles Ride through Morocco"; William Tucker "Life and Society in Eastern Europe"; Robert Tenant "Sardinia and its Resources"; Margaret Collier "Home by the Adriatic"; Mrs. Walker "Eastern Life and Scenery"; De Amicis an account of Constantinople; and Edwin Arnold "India Revisited." Romilly's "Western Pacific and New Guinea," Sutherland's "Australia," and works by Gane, Taylor, and Willoughby on "New South Wales and Victoria," fully exploited the regions of Australasia. Julian Thomas issued his "Cannibals and Convicts of the Western Pacific," G. A. Shaw "The Madagascar of To-Day," and the Palestine Exploration Fund published a "Survey of Western Palestine" and "Across the Jordan," and reviewed its "Twenty-one Years' Work in the Holy Land." Several works on India appeared, by Wheeler, Blunt, Cotton, and others, two on China by Miss Gordon-Cumming and Mr. Henry, two by Maclay and Pearson on Japan, and two on Persia by Kerr and Bassett.

Physical, Moral, and Intellectual Science.—In this department are included works on physics, economics, and mental and moral philosophy, subjects that have been somewhat voluminously treated during the year. Prof. Milne's "Earthquakes and other Earth Movements" appeared in the early part of the year; in hydraulics an important publication was Jackson's "Statistics of Hydraulic Works and Hydraulics of England, Canada, Egypt, and India"; Wormell's "Electricity in the Service of Man" was translated, and Knecht translated Benedikt's "Chemistry of the Coal-Tar Colors." The "Report on the Scientific Results of the Voyage of the Challenger" reached its twelfth and thirteenth volumes. Wood-Martin published the "Lake-Dwellings of Ireland," Dr. Croll issued his "Discussions on Climate and Cosmogony," and Lotze's "Microcosmus" was translated by Elizabeth Hamilton and Constance Jones. "The Flora of the English Lake District" was published by Mr.

Baker, Haldene wrote on "Sub-Tropical Cultivation and Climate," Geikie's "Class-Book and Outlines of Geology" was issued, also Wood's "Luminiferous Ether," Hartmann's "Anthropoid Apes," and a translation of Weidersheim's "Elements of the Comparative Anatomy of Vertebrates."

Among philosophical works were Maudsley's "Natural Causes and Supernatural Seemings," Seth's lectures on "Scottish Philosophy," Haldene and Kemp translated the second and third volumes of Schopenhauer's "The World as Will and Idea," and there appeared Sorley's "Ethics and Naturalism," and Caroline Haddon's "Studies in Hinton's Ethics."

Political and social economy were treated in Sir Henry Maine's "Popular Government," in "Class Interests in their Relation to Each Other and to Government," and Barnes's "Labor Problem." There were also published Taylor's "Introduction to a History of the Factory System," Graham's "Social Problem in its Economical, Moral, and Political Aspects," Lord Brabazon's "Social Arrows," White's "Problems of a Great City," Birkbeck's "Historical Sketch of the Distribution of Land in England," and Phillips's "Labor, Land, and Law." Giffen issued a second series of his collected "Essays in Finance," Rae a book entitled "The Country Banker," and Thwing's "The Family," and Robertson Smith's "Kinship and Marriage in Early Arabia," discussed this branch of sociology.

LITERATURE, CONTINENTAL, IN 1886. The unsettled condition of political affairs has had its effect, and that not altogether favorable to good letters. Literature, nevertheless, in the broad sense of the term, has flourished to a fair extent, and various works of merit have been published. The love of letters continues to manifest itself, and writers of ability and established reputation, as well as new candidates for public favor, have contributed freely. In accordance with the plan heretofore adopted, we give the record in the alphabetical order of countries on the Continent.

Belgium.—The number of books on history and its cognates is not large this year. Altmeier's posthumous work, entitled "Les Précurseurs de la Réforme aux Pays-Bas," is valuable, though not attractive in style, and M. Namèche has published three volumes of his "Cours d'Histoire Nationale," as a separate work, under the title "Le Règne de Philippe II dans les Pays-Bas." A fifth volume of the "Correspondence of the Cardinal de Granvelle" has been published by M. Piot, successor to the much-lamented Louis Gachard, keeper of the records of the realm, who died during 1886. M. S. Bormans has edited the Latin memoir of Onuphrius, the Pontifical legate, on the "State of Liège, in 1468," when the struggle against Charles the Bold was at its height. M. F. Van der Haeghen and his collaborators have completed the excellent "Bibliographie Lipsienne," in which the fa-

mous Belgian philologist receives the due meed of praise. The new volumes of "National Biography" extend from Van Helmont to Henschling. In the department of local history may be named the first portion of M. Genard's "Anvers à travers les Ages." Count d'Alviella published a summary of his lectures at the University of Brussels, in his "Introduction to the General History of Religions"; and M. G. Kurth, in his "Origin of Modern Civilization," has contributed an important book on the early centuries of the middle ages. The critics charge the writer with a too manifest purpose of striving to uphold the Church of Rome. In social science the contributions are few and meager. M. Roose's "The Work of P. P. Rubens" is highly praised for its type and illustrations; the first numbers only have been published. Several interesting volumes of travel have appeared, giving accounts of explorations and visits in Congo and other parts of Africa, in the United States, etc. The school known as "Young Belgium" continues to be active and energetic in various departments of literature, chiefly in poetry and fiction. M. C. Lemonnier, now resident in Paris, has published "Happé-Chair," which is said to be a sort of Belgian counterpart of Zola's "Germinal." Some aesthetic essays have been published, and several new plays by Rulens, Waller, and Nautet, have been put on the stage in Brussels. Flemish literature excites much attention, and fresh editions of the older writers, as H. Conscience, Madame Courtmans, etc., have appeared. In the drama the production is steady, and on the whole creditable. Various indications are given that Flemish literature is increasing in importance, especially as one half the population of Belgium use the old tongue. A number of monographs on the Flemish movement and on local history have been published, and M. F. de Potter continues his great work on the history of "Ghent from Early Times to the Present Day." Two publications of old texts have aroused public attention, and M. N. de Pauw has brought out the edicts of the magistrates of Ghent in the fourteenth century.

Bohemia.—Bohemian literature seems to be growing and improving, and the record for 1886 is on the whole encouraging. Cech, now in the prime of life, contributes excellent specimens of poetry, satire, etc., and J. Vrehlicky, the most esteemed of national poets, has published two volumes of lyric and narrative poetry. I. Zeyer and A. Heyduch have also brought out poems of superior merit. The drama is well sustained, and novels are both abundant and good. J. Braun writes historical novels, F. Herite satirical sketches, Vrehlicky ironical and sentimental tales, and Z. Winter stories drawn from Bohemian archives. Illustrated books meet with popular favor, among which may be named the "Queen's Court Manuscript," by Manes; "Bohemia," containing a description of Prague, by E. Tou-

ner; and "The Castles and Ruins of Bohemia," by J. Sedlacek. History is also well represented by Tomek, in the seventh volume of his "History of Prague" (1460-78); F. Lembara's "History of the Middle Ages"; A. Stein's "History of the Jews"; and F. Sasinck's "Bohemia in the Tenth Century." Dr. F. Backovsky continues his large work, "The History of Bohemian Literature," and prints also a "Collection of our Best Poetic Treasures," in five volumes. A book on the "Dialects of Moravia," by F. Bartos, is regarded as a rarity in Bohemian literature.

Denmark.—Danish literature during the year is notable for quantity rather than quality, and critics complain with justice of "over-production." Several new names occur among the authors, both male and female, who write stories, tales, poetry, etc.; but no one of commanding excellence has yet appeared. Among authors of established reputation, who have contributed to literature in 1886, are H. Bang, in "Quiet Existences"; Schandorph, in "Six Tales"; H. F. Ewald, in an historical romance, "Niels Ebbesøn," etc. A collection of "Poems and Fragments" by the distinguished novelist, J. P. Jacobson (who died last year), has been published and well received. To the drama, H. Drachmann has contributed an historical tragedy, entitled "Alkibiades," and K. Gjellerup another, entitled "St. Just." The critics complain that these are hardly equal to what the public has a right to expect from their pens. Schandorph has brought out a comedy, "Candidates for Election," and C. Hostrup has produced "The Guards of Karen," both of which are good in their way, but not of remarkable ability. In historical literature, F. Barford's "History of Denmark" (1319-1536) is completed, and is regarded as very valuable. I. F. Dalström has published an illustrated "History of the World," in seventy parts; N. Bache, also, has finished his elaborate "History of the North," in five 8vo volumes, with several hundred illustrations. Another work deserving mention here is "Denmark Described and Illustrated," by M. Galschödt. It is 4to in size, and the descriptions are from the pens of eminent writers. Fourteen parts thus far have been issued. Kalkar's "Dictionary of the Danish Language" is slowly progressing, and gives promise of being highly valuable. Prof. P. Hansen has completed his "Illustrated History of Danish Literature," which reaches from the earliest period to the year 1870. Critics pronounce this work to be the literary event in Denmark for 1886. C. Christensen, in his "Studies in Agrarian History," and A. Nielsen, in "The Danish Peasant," throw much light upon the thoughts and feelings prevalent in the villages at the present day. Several novels by popular American authors (E. P. Roe, L. M. Alcott, Mark Twain, etc.) have appeared in Danish translations. No work in philosophy or aesthetics has been produced. It may be mentioned,

in conclusion, that Paul B. Du Chaillu, the well-known traveler, has been spending some years in Copenhagen, and preparing a new work on "The Viking Age." It is to be in two volumes, and is expected to appear during 1887.

France.—A careful survey of the literature of France during 1886 leads to the conviction that it falls below the level of 1885. This applies to poetry and fiction, as well as to history, philosophy, criticism, etc. In poetry there is a literary clique of men who may be termed madmen or idlers, but who call themselves *decadents*. Their chief aim appears to be, under the pretext of symbolism, metaphysics, "rare impressions," and the like, to produce something smart, but quite unintelligible to most readers. P. Verlaine and S. Mallarmé are the leaders of this school, which it is expected will die out ere long. Two posthumous poems of Victor Hugo have appeared, one of which, "The End of Satan," is much praised by the critics on account of its restorationist tendency, the idea being that, at some period in the future, evil will disappear, and Satan be redeemed by love. M. Sully-Prudhomme's "Le Tourment Divin" is exceedingly well done, and deals with the subject of man's despair at his impotency to grasp the final cause of the universe, and to read aright the riddle of the world. A few other productions in verse deserve mention here, viz.: J. Richepin's "La Mer," a work of genius and merit; J. Rameau's "Life and Death," brilliant and full of promise; M. Rollinat's "Abime," somewhat gross, but powerful in dealing with the emotions; P. Gauthiez's "Les Voix Errantes," which possesses real merit; and M. Zénon-Fièvre's "Le Livre des Âmes," a work of consummate art and skill. Turning to novels, we find that the number published in 1886 is almost incredible. Realism appears to be triumphant everywhere, and on the increase. By realism is meant, not the coarse naturalism of Zola and his thousand imitators, but the exact study of the entire man, bringing out the moral element, and striving to elevate and improve the race. Pierre Loti is one of the best specimens of this sort of realism. He is characterized as "profoundly human, and uniting the feelings of honor, of duty, of family affection, and of devotion to the country, which he serves as a naval officer, with a marked liking for beings whom he has met in all parts of the globe, and whom he clothes with native beauty and nobleness." His "Ariyadé," "Mon Frère Yves," "Le Roman d'un Spahi," and "Pêcheur d'Islande," are highly praised, and the author bids fair to become illustrious in French literature. Zola's new novel, "L'Œuvre," has been severely and deservedly criticised. It is a much worse book than "Germinal," and that was certainly bad enough (as was noted in last year's review). After Zola come Neaupassant, De Goncourt, and Huysmans, who are followed by a host of imitators, who deal largely in the worst sort of

realism and brutal pessimism. Among novels of a better sort are, "Monsieur Jean," by F. Fabre; "Merlette," by Rémy de Gourmont; "La Fille à Blanchard," by Jules Case; this last belonging to what may be called the psychological sentimental school. Paul Bourget has published a striking novel, "Crime d'Amour." He is also author of a very able book, "Essais de Psychologie Contemporaine," and holds high rank among French writers and thinkers. M. Rabusson, Octave Feuillet, and André Theuriet have made noteworthy contributions to light literature. "L'Opium," by Bonnetan, is characterized as a capital study of the psychological and physiological effects of that powerful drug. In the drama, Henri Becque, and Émile Bergerat have done good service; but since the fall of the empire, the critics note that the stage has been unlucky, and seems to have fallen into decay. M. Renan has brought out "L'Abbesse de Jouarre," a play, with some good and numerous bad points in it. In history and philosophy, the "Souvenirs du Duc de Broglie" (4 vols.), P. Thureau-Dangin's "Histoire de la Monarchie de Juillet" (3 vols.), M. Bardoux's "La Bourgeoisie Française" (1789-1848), M. Berthelet's "Science et Politique," A. Franck's "Philosophie du Droit Civil," deserve honorable mention. Out of numerous other works may be named here, E. Quinet's "Lettres d'Exil," Jules Simon's "Notice sur Michelet," "La France Coloniale," by A. Rambaud, "Guerres d'Italie," by Montluc, "Étude sur le Scepticisme de Pascal considéré dans les Pensées," by E. Droz, and "Lettres Inédites de Mlle. de Lespinasse," by C. Henry. Criticism, conspicuous in 1885, has continued to do good service in 1886, in the hands of Raoul Frary, E. Droz, E. Montégut, Viscomte E. M. de Vogué, Jules Lemaitre, and A. Marchand. Travel and exploration have met with a fair share of attention, but the publications in this department are few and of no great moment. Politics and social science continue to attract attention and study. A. Coste has well described and discussed pauperism, monopolies, education, and their adjuncts, in his "Les Questions Sociales Contemporaines"; Jules Barni deals faithfully with "La Morale dans la Démocratie"; and L. J. Janvier gives an interesting and valuable account of "Les Constitutions d'Haiti." Translations from English and other languages into French have been made to some extent. In theology and religion but little seems to have been accomplished, and our record is singularly bare as respects this department.

Germany.—In Germany, during the year 1886, there was nothing particularly striking or important in the way of literary production, yet the record is, on the whole, fair and good. The venerable Nestor of German historians, Von Ranke, died in May. The sixth volume of his "Universal History" was published last year, and he left the seventh complete in manuscript. Possibly the work will be continued

by other hands from the papers left by Ranke. The death of G. Waitz, President of the Academy, puts a check upon the publication of the "Monumenta Germaniae," a valuable work in charge of members of the academies at Vienna, Berlin, and Munich. A. Gindely has brought out a fresh contribution in relation to Wallenstein (1631-34), who is still to a large extent an enigma in history. G. F. Herzberg has published a "History of Ancient Rome," which is praised by the critics. L. Pastor's "History of the Popes," from a Roman Catholic standpoint (to be in six volumes), is regarded as a learned and vigorous offset to the usual history as given by Protestants. It may be considered a valuable supplement to one of Ranke's chief works. German history, at the time of the "Counter-Reformation," is treated of by Mr. Ritter, and Droysen's "History of Frederick the Great" has reached a fourth volume. Mommsen also has brought out another volume of his "History of Rome." Karpelès's "History of Hebrew Literature" appears to be the first comprehensive work of its kind thus far produced. A number of other contributions to historical literature have been made by Krones, E. Joachim, F. von Bezold, O. Lorenz, H. Siegel, and R. Gneist. Gustav Freytag (now past seventy) has issued the first volume of his "Reminiscences," which gives promise of much interest. "Young Germany" is striving to produce a reaction against the extravagances of the imitators of J. V. Scheffel, a poet of renown, who died in April, 1886. Critics denounce these hybrid archæological romances and predict their speedy downfall. The new school aims to reproduce the life and pathos of the ode and hymn. M. Greif and J. Proelss are named as writers of excellent lyrics and genuine, healthy songs. In regard to dramatic literature not much is to be said. Paul Heyse has made two or three noteworthy contributions. R. Voss, in his "Patriciarin" and "Brigitta," has gained applause; and E. von Wildenbruch, in his latest play, "Das Neue Gebot," has dealt with a novel subject, viz., the hardship and trouble caused by Pope Gregory VII forbidding the marriage of priests. Comedy is well represented by such writers as O. Blumenthal, G. Moser, H. Lubliner, F. Brenntano, etc. Novels of all sorts continue to be published in large numbers. Among these we may name Spielhagen's "Im Heilbade," G. Ebers's new Egyptian story, "Die Nilbrant," E. Eckstein's "Violanta," H. Klein's "Blinde Liebe," E. Marriott's "Geistliche Tod," etc. Tales and shorter stories also are numerous and good, as Heyse's latest collection of "Novehlen," and similar productions by T. Storm, G. Keller, R. Lindau, J. Grosse, B. Groller, etc. The Goethe literature still holds public attention, although the death of W. Scherer, who was charged with the care of the critical edition of the poet's works, is much lamented, and will cause further delay. Scherer was a very able man and a critic of first rank, as

shown in his chief work, "History of German Literature." Julius Wolf's epic of "Lurley" is thought to be inferior to his previous poetical efforts. Count Schack, although past seventy, writes with unabated vigor in his "Mennon, a Myth"; and a German princess, Queen of Roumania, signing herself as "Carmen Sylvæ," has brought out a volume entitled "Meine Ruhe," which contains ballads, romances, love-songs, etc. Humorous and satirical poetry is represented by H. Söderström and E. Borrmann. Among works of ethnographical interest is the handsomely illustrated "Oestreich-Ungarn in Wort und Bild," by the Crown-Prince of Austria, of which the critics speak in the highest terms. With this may be classed the descriptions of the Austrian Alps from the Bavarian Highlands, edited by Max Haushofer. F. von Löher, the well-known traveler, has collected and published matter drawn from all regions of the world for instruction of the general reader. Other works of travel and adventure are from the pens of G. Radde, the distinguished ornithologist, and Max Eyth, an engineer of note. In philosophy we have a sort of philosophical testament from among the papers of Alexander Jung, who died in 1884 at the age of eighty-five, which displays idealism, enthusiasm, and optimism. G. Hauffe's "Anthropology" traces back the essence of man's nature to an absolute and indissoluble union of the corporeal with the psychic element, the spiritual soul with the material body; and Du Bois-Reymond, in his "Academic Discourses," reveals the irresistible need of something beyond this material world, and acknowledges the "world-riddles" of psychic phenomena accompanying physical processes. The collected "Essays" and "Ethics" of W. Wundt deal with important questions, and are likely to produce marked effect. C. Werner's comprehensive "History of Italian Philosophy" is very valuable and complete, and L. Strümpell's "Introduction to Philosophy" is well constructed and executed.

Greece.—Literary activity in Greece has kept pace with that of any previous year, notwithstanding the disturbed political condition of the country during the earlier half of 1886. At Zante "The Poetic Flower-Garden," a magazine devoted to poetry, has made its appearance, and promises to do good service in this department. C. Palamas's "Songs of my Home" display considerable talent and genuine feeling, and Demetrios Kokkos's "Recollections and Hopes" give form and life to national traditions and help to incite Greek patriotism. D. Koromilas has produced a play entitled "The Judgment of Bockhoris," an episode in the history of ancient Egypt. "Tales and Recollections," being contributed to the journals of recent years, have been collected and published by G. Drosinis, the author. In "Pro Patria" several of the best Greek writers have contributed a memorial to those killed or wounded on the Græco-Turkish frontier in

May, 1886. Two veterans among the poets—T. Orphanidis and G. Paraschos—have departed this life, advanced in years. The former was connected with the university and taught there. He was author of poetical satires and narrative poems, which met with much favor. The latter, Paraschos, published a number of national poems, translated "Hernani" into modern Greek, and was preparing a Neo-Hellenic version of the "Iliad" at the time of his death. Among philological publications of the year that deserve special note are the letters of A. Coray, the distinguished linguistic scholar and worker. The present collection of letters fills four volumes, and is valuable as throwing light not only on Coray's studies and pursuits, but also on the state of matters in France during his stay in that country. A. P. Keramens has issued "A Brief Account of Palæogeographical Researches in Constantinople and on the Shores of the Black Sea" in furtherance of the laudable design to make known the MSS. preserved in Eastern monasteries. H. Kleanthes has brought out the first volume of an annotated edition of "Pindar," with a modern Greek translation, which is to fill five volumes. S. Sakellaropoulos has prepared an excellent "Hand-Book of the History of Greek Literature," which is valuable for containing a copious bibliography of Neo-Hellenic publications on classical authors. Paul Karolidis's "Notices of the Aryan Tribes in Asia Minor" is said to be a good historical monograph. A. Miliarakis is engaged upon a systematic comparative geography of the kingdom of Greece. It is the result of extensive personal investigation and critical research, and has a good map added. The first part has been issued, and relates to Argolis and Corinth. N. Schinas's "Notices of Journeys in Macedonia, Epirus, on the New Frontier, and in Thessaly," are designed for military purposes. Archaeology and numismatics have received fair attention. The Gortyna inscription, to which the notice of *savants* has been directed in Europe and America, has given rise to copious literature of its own, and J. Typaldos, a scholarly lawyer, has written a series of valuable articles on it, which have appeared in the "Journal of the Society of Advocates" of Athens. Paul Lambros has written a work entitled "Coins of the Mediæval Rulers of Chios," valuable for matter and well illustrated. The Government has also issued a volume containing the laws, ordinances, and circulars relating to ancient remains. The first part of a work on "The Museums of Athens" is admirably brought out, and the subject is quite sure to excite general interest. The opening part contains a succinct view of the recent excavations on the Acropolis, and seven phototypes of the archaic statues found there. Substantially the statement of last year's record holds good for 1886 in respect to philosophical and educational publications, fiction, works of travel, dramatic efforts, etc. There is, however, nothing important in this regard.

Holland.—Dutch literature during the past year has been meager and disappointing. Two of the best writers in Holland have died, viz., Mrs. Bosboom-Toussaint and C. B. Huët. The former was noted for vigorous style, large information, and deep knowledge of the human heart. Some of her historical novels are regarded as masterpieces. Huët was looked upon as one of the wittiest and most suggestive of Dutch authors. His account of the results of the theological performances of the Tübingen school, and his works on the great masters—Rubens and Rembrandt—established his reputation. The passing away of these two is a great loss to Holland. In regard to poetry but little can be said. M. Bohl's "Canzoneni" are written in the Italian metre, and are respectable if nothing more. Marie Bodaert has furnished a charming poem now and then; Florentyn and Constantyn have produced some good epigrams and the like in the "Spectator"; W. Prins (noticed last year) has published a volume of verse entitled "Zouder Sonnetten," which are adjudged by critics to be very original in thought and form; and Dr. Schaeppman has brought out a poem in many cantos, "Ayasofia," in which he depicts with considerable power and feeling many of the scenes and characters connected with the grand Christian temple of St. Sophia in Constantinople. The novels of the year do not rise above the average. This is true of such writers as Wolters, Ter Burch, Van Duyl, Van Maurik, Otto, and others. W. Vosmaer, in his "In Dienst," describes with force the hardships and toils of a young private in the barracks. Two accomplished women have written "Tales and Sketches," which possess much merit. The naturalistic school, too, has its disciples, among whom are Cooplandt and Netscher, who show no improvement upon the unsavory model which they copy. Three books of travel are well spoken of by the critics, viz., Van Nieuwelt's "Alpenboch," an entertaining account of travels in Switzerland and the Tyrol; M. Emaut's impressions received in the palm-gardens of Elche, in Toledo, Seville, etc.; and M. Honigh's "Noorwegen," which shows intimate acquaintance with the literature, history, and people of Norway. A few historical novels and novelettes are named, but they are of no particular interest or value. The public archives have yielded good results in the hands of P. A. Tiele and Dr. Wynne. J. A. Feith, Dr. Pleyte, and others, have written learnedly about the old Dutch laws and jurisdiction; and the old poets and painters are well dealt with in "Oud Holland." Dr. Van Deventer has begun a popular history of Java, and Ter Gouw has brought the history of Amsterdam to the middle of the sixteenth century. Dr. T. Nolen's monograph on David Van Hoogstraaten is valuable for glimpses of literary matters belonging to the seventeenth and eighteenth centuries. Cosyn has brought out the second volume of his "Old West Saxon

Grammar," Kalff has edited some Middle Dutch epic fragments, and Brill has re-edited Melis Stohe's "Rymkronich." Prof. De Vries's great dictionary has reached the letter G, Verdam and Andreæs have brought the "Midd. Med. Woordenboek" to the letter H, and Prof. Frank has nearly finished matter under K in his "Etymological Dictionary." On the whole, the zeal and industry of scholars, in connection with the history of the language of Holland, operate as a sort of consolation to lovers of their country and literature, in view of numerous shortcomings and much disappointment.

Hungary.—Hungary shows but slight advance in literary progress over the year 1885. A complete edition of the works of the late John Arany came out during the year, comprising such writings of his as had been contributed to magazines and other periodicals. The posthumous works of this great poet of modern Hungary are looked for with deep interest; meanwhile, Prof. F. Riedl has done Arany full justice in a recently published biography. The collected poems of J. Garay and of M. Tompas, as well as of Vas Gereben, have been brought out and received with general favor. Other collected poems by Györy, Torkos, and Rudnanszky, have been published. In the drama M. G. Csíky has produced a tragedy, entitled "Spartacus," of which the critics speak very favorably. His "Petneházy," composed for the festival in memory of the recapture of Buda from the Turks in 1686, and his libretto for the opera, "In Search of a King," were received with applause. Mrs. H. Beniczky has written a comedy, "Countess Rhea," and E. Rákosy has supplied the public with "The Recapture of Buda." The number of novels brought out is as great as in former years, though the quality does not quite correspond with the quantity. Mrs. Beniczky furnishes two, "Behind Closed Doors," and "The Power of Blood." These are among the best that have appeared. Other novels are, "The New County Lieutenant," by L. Tolnay; "The Black Lady," by C. Szathmáry; and "Isaac," by E. Kázar. Novelists of the first class, viz., Jókai and Mikszáth, have published nothing this year. The bicentenary of the recapture of Buda from Moslem oppression occupied general attention, and gave rise to Arpád Károlyi's excellent work, "The Recapture of Buda and Pest in the year 1686." The critics speak of this contribution to historical literature in the very highest terms of praise. A new edition also of Prof. Salamon's able book, "Hungary during the Occupation of the Turks" was called for, and brought afresh to people's minds the hardships and struggles of the nation from the battle of Mohács, 1256, until 1686. To this period belong several other works of merit, as "Treasury Lists of the Turks in Hungary," by Velicz and Kammerer; "A Sketch of Sigismund Rákóczy (1622-1654)," by A. Szilágyi; and "A Life of Cardinal Peter Pázmán," by Canon W. Frak-

nói. Rakóczy, on the side of Protestantism, took up arms for national independence, while Pázmán aided largely in consolidating the Austrian power. "The History of the Danubian Navy," in early times, by E. Szentklárai, is interesting and useful. "The Speeches of the Hungarian Patriot, Francis Deák" (1848–1861), edited by E. Kónyi, have been published, and manifest the high and noble spirit of the man. Geographical and ethnographical literature is quite abundant in 1886, as is shown by Prof. J. Hunfalvy's second volume of his great work on the geography of the world, which is specially devoted to Hungary; Prof. Loézy's important work on China, based on personal investigations, with a valuable map attached; J. Asbóth's volume on Bosnia and Herzegovina, dealing with social, political, and other features of the country; and A. Vámberý's "The Turkish Race," published by the Academy, the fruit of personal observation and experience among the Turks. A. Bedő's work on the forests of Hungary deserves mention in this connection. We may also note Prof. Z. Beöthy's "History of Folk-Lore in Hungary," from the sixteenth century onward; J. Haraszti's monograph on the naturalistic novel cultivated by Zola so largely and offensively; and Prof. Gustav Heinrich's "History of German Literature," which ranks with the best books published on the subject in Germany or elsewhere. A word or two, in conclusion, is due to the memory of Arnold Ipolyi, Bishop of Nagyvárad, a man of vast learning and rare accomplishments. He was author of a number of valuable books, and his death, in December, 1886, is a loss both to the church and to science and art.

Italy.—The record of Italian literature for 1886 is only indifferently good. Some energy has been manifested in the department of history. A Jewish writer, David Castelli, Professor of Hebrew in the Instituto Superiore of Florence, has treated of the history of the Jews from the beginning until the time of the kings, using the modern rationalistic method, and not regarding inspiration or church tradition as of any special value. F. Covoni's monograph, describing the visit of Frederick Augustus IV, King of Denmark, to Florence, in 1708, is much praised by the critics. R. Galli has made an excellent beginning toward a history of Venice; and G. Govi has brought to light an interesting document relative to the expulsion of the Jesuits from Venice, in May, 1606. Some works in literary history deserve mention, viz., V. Cian's "Un Decennio della Vita di M. Pietro Bembo" (1521–1531); C. Ricci's volume on "The Spaniards and Venetians in Romagna" (1527–1529); F. Fiorenzi's "Il Risorgimento Filosofico nel Quattro Cento," which the author left only partly finished at the time of his death. In political history may be named a few good productions, based largely on original researches, such as P. Fea's "Alessandro Farnese, Duca di Par-

ma"; C. Merkel's "Manfredi I e Manfredi II, Lancia"; L. Cappelletti's "Storia popolare critica della Rivoluzione Francese," etc. Historical societies in Italy and the Vatican archivists display much zeal and industry in this department, with creditable results. In criticism the best work of the year is that by Zumbini, professor in the University of Naples, on the poems of Vincenzo Monti (1754–1828). Foscolo and Leopardi continue to receive a large share of attention from Italian critics. Zanella has made a good beginning on the subject of Italian literature in the eighteenth century. Translations from the Greek and other languages into Italian have also received considerable attention. In poetry the yield has not been large or important. I. de Chiara's "Fumo" contains some good verses; F. Zamboni's dramatic poem "Sotto i Flavi," is more ambitious and exhibits much talent; V. Barbiera has issued a small volume of poems entitled "Come Detta il Core," which are characterized by the critics as sweet, idyllic, and true. No novel that may be called great has appeared this year. Giacosa's "Novelle e Paesi Valdostani," contains stories and sketches drawn from the scenery and inhabitants of one of the most picturesque valleys of the Italian Alps, and are much praised. G. Visconti's story, "Il Curato d' Orobio" is fairly well done; as are also Campanus's "In quel Brutto Mesa," Rovetta's tale "Tiranni Minimi," Vassallo's romance "Diana Ricattatrice," and Capranica's romance, "Maria Dolores." E. de Amicis has published a book entitled "Cuora," for the benefit of boys, calculated to inspire love of country, family, and God. In the department of law we may mention F. Brandileone's work on "Byzantine Law in Southern Italy from the Eighth to the Twelfth Century"; P. Cogliolo's manual of the "Sources of Roman Law"; and R. Foglietti's "Observations on the History of Italian Law." In this connection we may properly make note of the death of Marco Minghetti, in December, who was distinguished as a man of letters, and renowned as an orator second to none of his countrymen.

Norway.—Fiction or light literature has had chief sway in Norway during 1886. Two novels have attained note, viz., K. Glöersen's "Every-day Life," and A. Kielland's "Snow." The former sketches life and manners among well-to-do people, and displays much power in character-painting. The latter is a trenchant assault upon the priesthood and the general bigotry that the author regards as prevalent in conservative circles. Kielland also completed a play in 1886, called "Tre Par" (Three Couples), which is French in style and bad in moral tone. The critics affirm that the drama could not be read aloud in a company of virtuous and cultivated ladies and gentlemen. Among the numerous novels published may be mentioned "Farvel, Hansen," by K. Winterhjelm; "Spring Mist," by Kristofer Kristofersen; "The Neighboring Farms," by Immanuel

Ross; "Women's Fates," by Elizabeth Schöyen; "Then and Now," by Charlotte Koren; and a series of hunting sketches, by Sofus Aars. In the drama Björnsen's twin-brother, Henrik Ibsen, has contributed a four-act play, entitled "Rosmersholm," which is variously criticised, some regarding it as his most successful work, others condemning it as inferior to previous dramas in spirit and execution. In the department of history not much has been added. Several works of value are in course of publication, such as an illustrated "History of Norway," by O. A. Overland; Unger's "Diplomatarium Norvegicum," a thesaurus of ancient lore; Brynildsen's "Norwegian-English Dictionary," a very full and complete lexicon. Military history receives attention in Lieut. Barstad's "The Defense of Bergen" (1801, 1807-'14). N. Rolsen has, with the aid of H. Jaeger, completed a work entitled "Norwegian Authors," which is an anthology of native writers from Peter Dass to the present time. It contains biographies and portraits, and is a work of value. In religious and scientific literature some books have appeared, but none of more than average importance. F. Grung, in "Spiritual Fetters," attempts to give a psychological analysis and refutation of pessimism, with moderate success. Translations of a number of American works have found favor in Norway, among which may be named Henry George's "Progress and Poverty" and Prof. Rasmus B. Anderson's "Norse Mythology."

Poland.—More than usual activity was developed in the drama this year in Poland, owing to the fact that three prizes were offered at Warsaw for plays. An historical drama, "Wojt Albert," by S. Kozlowski, was successful, as were two comedies, one by Mankowski, entitled "Minowski," the other, "Besieged on all Sides," by E. Lubowski. J. Blizinski and K. Zalewski produced highly successful plays, "Check and Mate," by the former, and "Our Sons-in-law," by the latter, are much praised by the critics. Historical novels and romances are in high favor in Poland this year. Among these may be named H. Sienkiewicz's "The Deluge" (in six volumes), referring to the disasters of Poland under King John Casimir; S. Kaczkowski's novel of the times of John Sobieski; P. Bykowski's "The Suitor of the Chatelain's Daughter"; and W. Rapacki's "The Sins of the King." In novels of manners Madame E. Orreszko holds the first place. Other writers in this line are also highly praised, as A. Glowacki, in "The Sentry"; J. Zacharyasiewicz, in his series of stories entitled "From Upper and Lower Ranks of Life"; Madame Ostoya in "Sketches and Pictures"; and M. Balucki, W. Sabowski, and T. Choinski, in their tales and sketches. In lyric poetry Rossowski's "Poems" have secured public approval. The able poetess, M. Bartus, who died recently, is much lamented; a collection of her verses has been made and published under the

title "The Spirit of the Ruins." History has received fair attention, as is shown in "The Diet of Four Years," by Kalinka; "The Saxon Times," i. e., Poland under kings of the house of Saxony; the "Liber Diligentiarum" of the University of Cracow, by W. Wislocki. Several valuable works begun in former years in this department are being continued by learned editors and students. P. Chmielowski, well known as an historian of literature, has published "Sketches and Studies of Literature," in five volumes; and A. Beleikowski has brought out his literary and æsthetic essays.

Russia.—During the present year, as was also the case in 1885, Russian literature has suffered much by the ravages of death among native authors, such as Aksakov, Boutlerov, Ostrovski, Kolomin, etc. The first named was the leader of the old Philo-Slav party in Russia, and was a poet of no little renown. His works have been published in six volumes, containing political articles, sketches of life and manners, etc. Ostrovski, celebrated as a dramatist, did good work for the national drama, in picturing especially the manners and customs of the merchant class. He was also a translator from the Italian, Spanish, and English, in which difficult work his success was marked. Count Leo Tolstoi, the famous Russian novelist and man of letters, has brought out a powerful story entitled "The Death of Ivan Ilyitch," together with popular tales and sketches. He is also doing good service to the cause of education, in preparing popular reading books, and the like. The Russian satirist, Stchedrin, continues his vocation; besides a book of "Fables," he has published a series of "Tales and Sketches," which fully sustains his reputation. Korolenko has brought out a new volume, containing several tales, which prove his ability as a writer. The year has been fruitful in novels, but the great majority are mediocre and do not deserve mention. History in its several departments has received full attention during the year. Martynov has published a good volume on "Gregory of Nyssa," and Plotinov has well set forth "The State of Heathen Beliefs at the Time of the Appearance of Christianity." Smirnof also has given a sketch of the growth of "The Christian Church," as relates to Russia especially, and Koutepov has issued a vigorous work "On the Heresy of the Skoptzi, or Godly People." The theological academies have been active, too, in the department of Church history. General history has received abundant care and attention from Russian students and scholars, as is evident by the publications of the "History of Russia," "History of Protestantism in Russia," by Tzvitayev; "Russia's Rôle in the Seven Years' War," by Maslovski; the "Memoirs" of the Russian Historical Society, etc. Several good books have appeared on ethnography, archaeology, and numismatics. Prof. Tikhouravov has reproduced the original text of Gogol's immortal comedy, "The Revisor"; a volume on Push-

kin, entitled "Pushkiniana," has been brought out by Mejov; and Prof. Miller, of St. Petersburg, has considered with much care "Russian Writers after Gogol," including Piszevski, Stchedrin, and Leo Tolstoi. Karjéev's "Literary Evolution in the West," and Vesselovski's "History of the Romance and Novel," deserve mention here. Philosophy and ethics are duly attended to in "The Philosophical Quarterly," and in a number of volumes that have appeared during the year. Two volumes may be named, Lopatin's "Positive Problems of Philosophy," and Prof. Grot's "The Soul in Connection with Contemporary Knowledge of Force." In social science we have Prof. Kovalevski's "Contemporary Custom and Ancient Law," and his work on "Primitive Law." The latter discusses questions of no less interest than importance. Gradovski's "Constitutional Laws of European States" is well adapted for popular use. In finance and statistics two volumes have been published, entitled a "Historico-Statistical Review of the Industry of Russia," giving a full account of the agricultural and manufacturing industries of the empire. In fiscal law a number of valuable works have appeared, which we have not room to name here. On universal history works have been abundant, specially Bauer's "Lectures on Modern History in the Fifteenth and Sixteenth Centuries," Osokin's "The Political Movements in Europe in the Nineteenth Century," and Vinogradov's "Researches into the Social History of England during the Middle Ages." Much attention also has been given to translations into Russian from English, French, and German authors, such as Gibbon, Dickens, Herbert Spencer, Victor Hugo, Rochefoucauld, Goethe, and Heine.

Spain.—Much activity has been displayed in literature in 1886, and the promise for the future is very encouraging. The academies and other learned bodies have been very diligent in cultivating the field of national history, and their publications are of first importance, especially those of the Royal Academy of History. Private individuals, too, have labored in the same department. This is shown by works on the Inquisition, the reign of Philip IV (1621-1626, and later years), the cities and towns of Spain, the traditions, archives, etc. Several manuals of topographical history have appeared, which may serve, it is suggested, as guide-books. In biography little has been accomplished; yet, Alfonso's "Life of Murillo" deserves mention. The Royal Academy's "Dictionary of the Spanish Language" has met with some sharp criticism, and various essays on both the language and the dialects of the kingdom have appeared. These latter call forth much talent and devotion on the part of students in this interesting line of research. Poetry, novels, and light literature in general, are on the increase in Spain. Campoamor has published seven poems, lyric or dramatic—Nuñez de Arce one, Palacio one, and Zorilla

one. New editions of Alarcon, Valera, Guerero, and others have been issued, and the names of Villanova, Valcarcel, Alvear, Sala, etc., are added to the list of new poets in search of fame and right appreciation. Fiction is abundant in the way of folk-lore, translations from other languages, and original contributions. Among these may be named "Los Patros de Ulloa," by a lady, E. P. Bazan; "Esperanza y Caridad," by P. Nieva; "María," by Turena; "Luisa Minerva," by J. R. Mélida; and "Mio Devociones, Notas Intimas de Madrid y Paris," by Blasco. Societies and printing-clubs are actively engaged in bringing out of their hiding-places and putting into print various and valuable manuscripts, tracts, papers, etc. The "Autores Españoles" is an interesting and handy collection of old and modern standard works, of which six volumes have been issued during the year, and well received by the reading public. The political sciences, including popular education, civil rights, government, freedom of the press, etc., are being largely studied, and several volumes on these topics have appeared. In the physical and natural sciences some progress has been made, and some good volumes on geology, botany, mineralogy, etc., have been published. The Cervantes literature has been allowed to rest in peace this year.

Sweden.—In literature, Sweden has suffered during 1886 from obvious depression, arising apparently out of important and delicate questions being brought into debate. Mrs. A. C. Edgren has written "A Summer Tale," touching sharply upon unsettled questions of the relations of husband and wife; and Strindberg, the representative of the Zola carnalistic school in Sweden, has said some bitter and mean things about women in his last novel, "The Son of the Servant." Poetry received but scant attention this year, and has no record worth presenting. Victor Rydberg's "Investigations in Germanic Mythology" is perhaps the most important work of the year, as proceeding from Sweden's ablest writer, and marked by skill and ability of high order. F. F. Carlson has brought out a new volume of his "History of Charles XII of Sweden." To K. G. Grandinson we owe "Studies in the Hanseatic Swedish History"; to A. Nyström the beginning of a "General History of Culture"; to B. Meyer the completion of his "Literary Lexicon"; and to O. Sjögren a continuation of his labors on a "History of Antiquity." T. Ekelund has published "Literary Silhouettes," and J. Sundblad a selection from the correspondence of Archbishop Lindblow, at the end of the last century, entitled "Among Crosiers and Mitres." Two more volumes have been added by A. Ahnfelt to the "Recollections of Foreign Diplomatists in Stockholm." Biography has been enriched by a "Life of a Swedish Musical Composer, J. A. Josephson," and by P. T. Cleve's notes on Wilhelm Scheele, the celebrated Swedish chemist. In art has

been published "Swedish Kings and their Ages," a collection of photographs after contemporaneous pictures. The "Swedish Encyclopaedia" is making good progress, having reached the eleventh volume; it is expected to be completed in 1887. The death of H. Trolle, the popular novelist, may here be recorded. He wrote numerous sea-stories, such as "A Voyage on a Merchantman," "The Sea-Officer," "Captain Darell," etc., and also a history of the Swedish navy. On the whole, though depressed, the literature of Sweden manifests a fair share of life and vigor.

LOGAN, JOHN ALEXANDER, an American soldier and statesman, born in Jackson County, Ill., Feb. 9, 1826; died in Washington, D. C., Dec. 26, 1886. His father, Dr. John Logan, emigrated from Ireland when a young man, and settled in Ellicott's Mills, Maryland, but removed to Kentucky, then to Missouri, and finally established himself in the practice of medicine in Jackson County, Ill., a fertile and rapidly growing portion of the State. While living in Missouri, Dr. Logan married Miss Laramie, who died within a few years, leaving one child, a daughter. In Illinois the still young physician purchased a large tract of land, and to the house he erected upon it he brought, as his wife, Miss Elizabeth Jenkins, a native of Tennessee. She was a woman of rare gifts, possessing sound judgment, industry, and unbounded energy. A new town, Murphysboro', was laid out in part on Dr. Logan's land, and he built upon it a hotel, which his wife to a large extent superintended. Dr. Logan's medical practice grew, so that patients whom he could not reach came many miles to consult him; while in practical matters, concerning the improvement of the State, he took a deep interest. He was a representative in the State Legislature, elected by the Democrats, and held several county offices. He was personally popular, and his word was as good as his bond. He died in 1855.

John Alexander was the oldest son of Dr. John and Elizabeth Jenkins Logan. He was born to the somewhat hard conditions of a primitive Western home, but was sent to the little public school, and in addition his father secured a tutor who gave the boy a good English education, and the rudiments of a classical one. In 1840, in Shiloh College, he pursued his studies still further. He had a wonderful memory, and retained much of what he learned. But from childhood he loved hardy sports better than books or farming. The chief charm to him on his father's stock-farm was the breaking of a colt or the motion of a well-trained horse. When he was a little boy his father set him to drive off the squirrels that were stealing his growing corn, until he should have time to prevent their depredations in a more effective way. Young Logan's patience gave out, and he procured paper and pencil, wrote a manifesto announcing that all squirrel thieves would be shot without mercy, pinned it upon

the fence, and departed in search of more exciting adventures. The men of the neighborhood built a flat-boat, which they intended to float down to the Mississippi on the spring floods; but the freshet came with such force that they did not like to venture among the drifting timber and strong currents. Young Logan got into the craft, and piloted it safely into the great river.

On the declaration of war with Mexico, Logan enlisted as a private in Capt. James Hampton's company of the First Illinois Regiment, which had volunteered for the war. He was immediately offered the second lieutenancy, which he accepted. The regiment, under command of Col. Edward B. Newby, was ordered to New Mexico, and Logan was made quartermaster. He found it a serious task to procure the supplies and secure his vouchers and receipts; but when the war closed his accounts were found to be absolutely accurate, balancing to a cent.

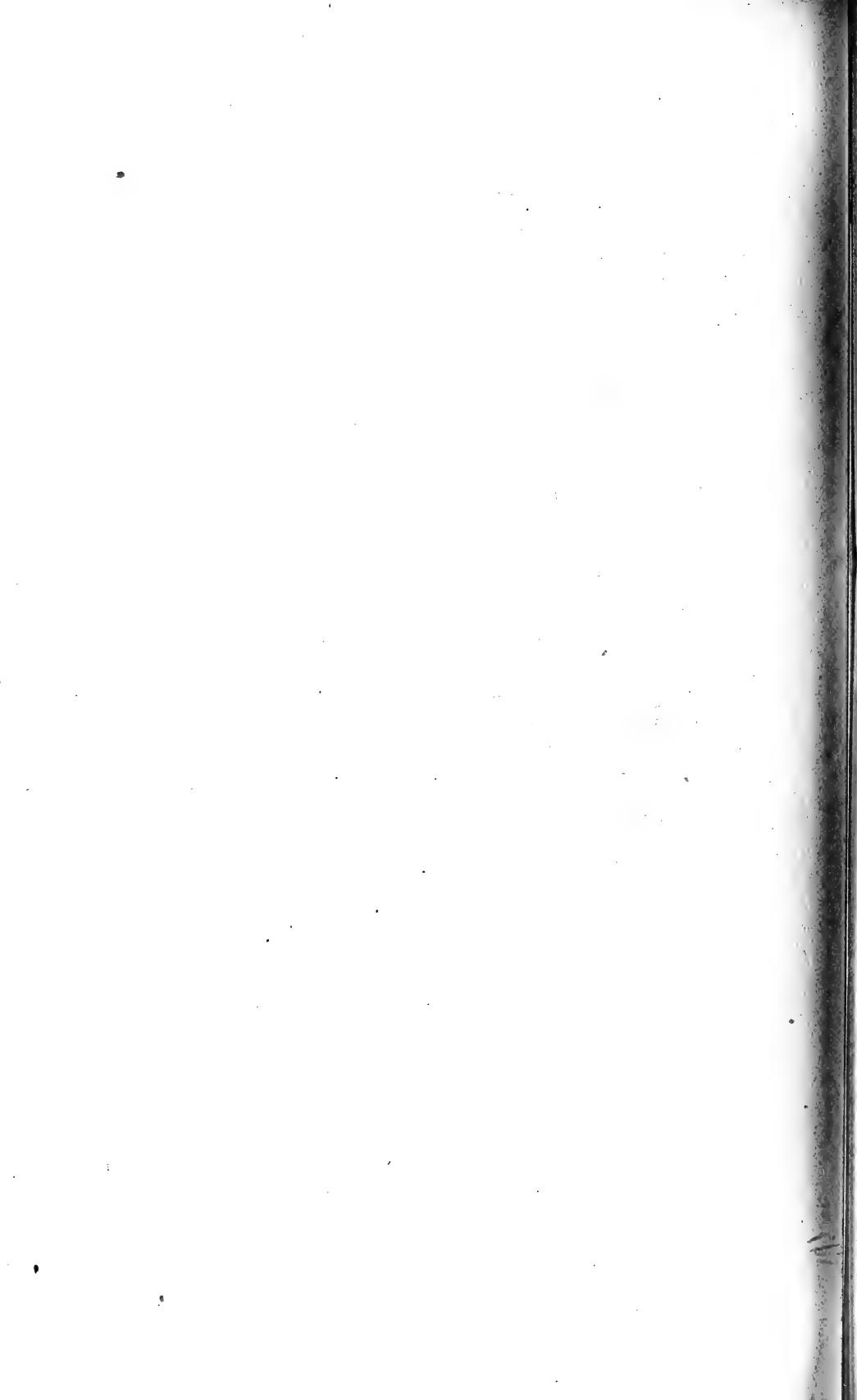
After the war closed, he entered the law-office of his uncle, Alexander M. Jenkins, formerly Lieutenant-Governor of Illinois. This was in 1848. The gallant returned soldier became the hero of the neighborhood. He was first in adventure, first in patriotic and eloquent speech-making, and not last in his studies. In illustration of his adventurous spirit, a story is told of some valuable horses that had been stolen by a member of an organized band of thieves, who had their retreat in an almost inaccessible swamp in Missouri. The men were of the worst description, and prepared for every emergency. Logan persuaded two young men to go with him in pursuit, and on the second day they returned with the horses, though the thieves had made their escape.

The best law-school of the West in those days was connected with the University of Louisville, Ky., and here Logan attended a course of lectures, receiving his diploma in 1851. Two years before that time he had served a year as Clerk of Jackson County. After his admission to the bar, he became his uncle's partner, and such was his ability that in a year he was chosen prosecuting attorney of the Third Judicial Circuit of Illinois. He was especially noted for his clear insight, forcible style of oratory, pleasing address, and fine voice. In the autumn of 1851 he was elected to represent Jackson and Franklin Counties in the Illinois Legislature, and in 1852 he removed his residence to Benton.

On Nov. 27, 1855, he married Miss Mary S. Cunningham, daughter of John M. Cunningham, ex-Register of the United States Land-Office. Mrs. Logan is so remarkable, both in her personal qualities and in the way in which she has entered into and promoted her husband's career, that a sketch of the husband naturally includes one of the wife. Her paternal great-grandfather was Robert Cunningham, an Irish emigrant to Virginia, who fought with the Americans through the Revolutionary



John A. Logan



War. When that was over, he removed to the Territory of Illinois, where he emancipated slaves owned in Virginia. Mrs. Logan's father, Capt. John Cunningham, served in the Black Hawk War, and in the war with Mexico, after which he was a member of the Illinois Legislature. His wife, Mrs. Logan's mother, was descended from a family of Fontaines, French people, who settled in Louisiana while it belonged to France, and then came up the Mississippi, settling in Missouri. There Miss Fontaine met and married John Cunningham, and their daughter Mary was born to the hardships of frontier life. Although she assisted her mother in all the complex duties that their situation called for, the little girl had succeeded in gaining so much knowledge of the rudiments of an education that on his return from the wars her father sent her to the convent of St. Vincent, in Kentucky, the best young ladies' school of that region. The family were Baptists; but, although the pupil did not enjoy the religious services, she acquired friends as well as knowledge. After leaving school she assisted in preparing the papers needed by her father as sheriff of the county, clerk of the courts, and register of the land-office. Blank forms for any legal documents were rare, and Miss Cunningham wrote nearly all of these papers. While thus employed, she met John A. Logan, who was prosecuting attorney.

Mr. Logan, like his father before him, was a Democrat, and in 1856 was chosen a presidential elector for Buchanan and Breckinridge. That autumn and in 1857 he was returned to the Legislature. In the autumn of 1858, the year of the controversy between Lincoln and Douglas, Mr. Logan received a nomination to represent the Ninth District of Illinois in Congress. He received much of his support from old-line Whigs, and an overwhelming majority—fifteen thousand to two thousand. Representative Logan became widely known as a defender of Senator Douglas from personal attacks. Concerning his views on national politics at this time, there is a response in his own words: "I was born a Democrat; and all my life I have learned to believe that the Democratic party, in national convention, never does wrong. I have buried past issues. I have done with them. Ignoring them, I say that I am a Democrat, without a prefix to my name. I am for Stephen A. Douglas for the next President of the United States—first, last, and all the time. If he is not nominated, I am for the next man—that is, sir, the man who is nominated." It was a time when old party lines were breaking up rapidly under the pressure of more tremendous issues, and Logan made burning appeals to his party to be true to the Union and the Constitution. In an address in caucus, he said: "I have been taught to believe that the preservation of this Union, with its broad flag waving over us as the shield for our protection on land and on sea, is paramount to all

the parties and platforms that ever have existed or ever can exist. I would to-day, if I had the power, sink my own party and every other one, with all their platforms, into the vortex of ruin, without heaving a sigh or shedding a tear, to save the Union or even stop the revolution where it is! What shall I say to my gallant constituents when I return to them? Shall I bear the ill tidings that nothing has been done in Congress to give them a ray of hope for the future of our country? Must I tell those gallant Tennesseans, Kentuckians, and men from different Southern States, that are long, if they should desire to visit the soil of their nativity, they must be prepared to visit a foreign and perhaps a hostile government? Shall I say to the sons of gallant old Virginia, the mother of our own State, that it is highly probable that very soon, if they want to visit the soil where their fathers and mothers, the man who wrote the Declaration of Independence, the one who drafted the Constitution, and the one who, with our poor and half-starved armies, drove the British from our land, signed the Constitution, and was our first President, all lie buried—that they will at some future day have the opportunity, with a passport in their pockets, or, in certain events, they can do so with a torch in one hand and a sword in the other? No, no! Let me not bear this sad intelligence. In the name of the patriotic sires who breasted the storms and vicissitudes of the Revolution; by all the kindred ties of this country; in the name of the many battles fought for our freedom; in behalf of the young and the old; in behalf of the arts and sciences, civilization, peace, order, Christianity, and humanity, I appeal to you to strike from your limbs the chains that bind them; come forth from that loathsome prison, the party caucus, and in this hour, the most gloomy and disheartening to the lovers of free institutions that has ever existed during our country's history, arouse the drooping spirits of our countrymen by putting forth your good strong arms to assist in steadying the rocking pillars of the mightiest republic that has ever had an existence."

In 1860 Mr. Logan was re-elected. He supported Douglas with all his strength; but when Mr. Lincoln was declared elected he said, "I would shoulder my musket to have him inaugurated, if any armed demonstration should be made." With many others, Mr. Logan was swept by the march of events into the ranks of the Republican party; or, at least, he acted heart and soul with President Lincoln and his advisers. He repeated the words uttered by Douglas in his last public speech: "The conspiracy is now known, armies have been raised, war is levied to accomplish it. There are only two sides to the question. Every man must be for the United States or against it. There can be no neutrals in this war." In July, 1861, during the extra session of Congress, he

left his seat in the House, joined the troops hurrying out of Washington, and fought in the ranks at Bull Run. On his return, he resigned his seat, and went home to raise the Thirty-first Illinois Regiment of Infantry, which he commanded at Ball's Bluff, Fort Henry, and Fort Donelson. In the last-named battle he was severely wounded. In March, 1862, he was made a brigadier-general of volunteers, and took part in the movement against Corinth. Later in 1862 he was made a major-general, having commanded a division in Grant's campaign in northern Mississippi with great skill. He was in the battles of Port Gibson, Raymond, Jackson, and Champion Hills, commanded McPherson's center at the siege of Vicksburg, and was made military governor of that city after its capture. In November he succeeded to the command of the Fifteenth Army Corps. Joining Gen. Sherman's army in May, 1864, he led the advance of the Army of the Tennessee at the battle of Resaca, defeated Hardee at Dallas, and drove the enemy from the works at Kenesaw mountain. When Gen. McPherson was killed before Atlanta, Gen. Logan had command of the Army of the Tennessee, and it was mainly his skill and determination that saved Sherman's army from a serious disaster that day. After Atlanta fell, he went to Illinois and took an active part in the presidential canvass, advocating Lincoln's re-election. He rejoined Sherman in Savannah, after the march to the sea had been made, went through the Carolinas, and was present at the surrender of Johnston in April. He was elected to Congress as a Republican in 1866, and was re-elected until 1871, when he was made United States Senator, which post, except for a two years' interval, he retained until his death.

In the Republican National Convention held at Chicago in June, 1884, on the first ballot for a candidate for President, Gen. Logan received 63½ votes, against 334½ for Mr. Blaine, 278 for President Arthur, and 93 for Mr. Edmunds. After the nomination of Mr. Blaine had been completed, Gen. Logan was nominated for Vice-President.

Gen. Logan's more remarkable speeches were: "On Reconstruction" (1867); "On the Impeachment of President Johnson" (1868); "Principles of the Democratic Party" (1868); "Vindication of Gen. Grant against the Attack of Charles Sumner" (1872); "The Ku-klux of Louisiana" (1875); "On the Equalization of Bounties" (1875); "On the Power of the Government to enforce United States Laws" (1879); and on "The Fitz-John Porter Case" (1880). In regard to this last subject he always maintained that Gen. Porter had been justly condemned, and should not be restored. Gen. Logan published a large volume entitled "The Great Conspiracy," referring to the civil war (New York, 1886), and left in manuscript "The Volunteer Soldier in America," which is to be published posthumously.

LORING PASHA, WILLIAM WING, an American soldier, born in North Carolina, in 1818; died in New York city, Dec. 30, 1886. His family removed soon after his birth to Florida, with which State he was thenceforward identified. Gen. Loring displayed his military passion at a very early age. He ran away from home at the age of fourteen years, to join the Florida troops in the Seminole War. Within two years he was made a lieutenant, and participated in all the engagements with the Indians, notably those of Withlacoochee and Alqua, in which he displayed striking intrepidity and coolness, though a mere boy. On his return he entered Georgetown (D. C.) College; but he left his studies very hurriedly, at the breaking out of the Texan War of Independence, to join the Texan ranks. On attaining his majority he was sent to the Florida Legislature, where he served for three years. In 1846, on the eve of the Mexican War, he was appointed captain in the Mounted Rifles, the new regular regiment authorized by Congress. Assigned to the army under Gen. Scott, he took part in all the battles till the end of the campaign—Vera Cruz, Cerro Gordo, Contreras, Churubusco, Chapultepec, and the city of Mexico. At the last-named engagement he led the charging column, was wounded, and had his arm amputated on the field. He was specially named in Gen. Scott's dispatches, and succeeded to a majority, while he received two higher brevets for courage and conduct. From this time forward he served in command of his regiment. He was incessantly engaged in Indian fighting, and protecting the emigrants on the overland route. In 1849 he marched his regiment from Texas to Oregon, a distance of nearly 3,000 miles, and took command of that department. His tact and discretion contributed largely to the pacification of the boundary troubles with Great Britain, and keeping the border quiet. In 1851 Lieut.-Col. Loring was ordered back to the Rio Grande with his regiment, and for five years was continually in the saddle chasising the Indians, whom he attacked in many bloody contests. He became full colonel in 1855, and in 1858 served in the so-called Mormon War, under Gen. Albert Sidney Johnston. At the close of this military episode, Col. Loring took a year's leave of absence and traveled in Europe, Egypt, and the Holy Land. Returning to the United States, he was assigned to the command of the Department of New Mexico, which he retained until his resignation in 1861, for the purpose of joining the Confederacy. Though Col. Loring was an original Union man, and strongly opposed to the theory and policy of secession, he, like many other devout believers in the doctrine of State sovereignty, followed the fortunes of his State when it passed the ordinance of secession. He was commissioned brigadier-general, and his earlier service against the United States was in Western Virginia, where he was the only Confederate leader to achieve marked

success, though Gen. Lee had also acted in this field. In February, 1862, he was made major-general, and transferred to the Southwest. Acting as corps commander, and frequently in command of a separate army, Gen. Loring fought in all the bloody campaigns of Georgia, Mississippi, and Tennessee. Under Bragg, Hood, and Johnston, he bore an important part in nearly every great battle, from Vicksburg to Atlanta. At the disastrous battles of Franklin and Nashville in 1864, which nearly annihilated Hood's army, Gen. Loring was second in command. He was twice severely wounded during the war. At the close he was with Gen. Joseph E. Johnston, at Ben-

navy, and directed the coast fortifications. He shared with Gen. C. P. Stone (also an American soldier), the Khedive's chief of staff, the main responsibility of the whole military system, and the Egyptian army was indebted to these two officers for whatever degree of discipline and efficiency it attained. In the latter part of 1875 the Khedive determined on a formidable expedition against the Abyssinian King, John. Three months before, 2,500 Egyptians under Col. Arrendrup, who had been sent to Abyssinia to enforce an indemnity and settle the boundary-line, had been surprised and massacred by King John. The new expedition consisted of 11,000 troops of all arms.

Loring Pasha had been first designated as commander-in-chief of this force; but official jealousies and harem intrigue finally determined the appointment of Ratib Pasha, a Circassian general. Loring was made chief of staff, and Ratib was strictly enjoined to act entirely by the former's advice. Debarking at Massowah the expeditionary army marched into Abyssinia. After several skirmishes the Egyptian forces were attacked by King John, on the plains of Gura, in the heart of the country, at the head of an overwhelming force. Ratib Pasha, who had shown signal incapacity and cowardice from the beginning, and had refused to be guided by Loring Pasha's plans, was terribly defeated. His army was only saved from annihilation by the conduct and skill of Loring, backed by other American officers. This practically ended the campaign, as the Egyptians shortly afterward were ordered home, and peace was concluded. After three years of further service, Loring Pasha returned to the United States in 1879. During his stay in Egypt he had been promoted to the rank of *Fereek*, or lieutenant-general, and had received the two highest military orders, that of the *Osmanieh* and of the *Medjidieh*, from the Sultan of Turkey, at Ismail's request.

About three years before his death, Gen. Loring, who had begun to devote himself to authorship, published an account of his adventures and observations in the East under the title "A Confederate Soldier in Egypt." Up to the time of his death he was busily engaged in preparing a volume of reminiscences, which he left incomplete.

LOUISIANA. State Government.—The following were the State officers during the year: Governor, Samuel D. McEnery, Democrat; Lieutenant-Governor, Clay Knobloch; Secretary of State, Oscar Arroyo; Treasurer, E. A. Burke; Auditor, O. B. Steele; Attorney-



LORING PASHA, WILLIAM WING.

tonville, N. C., and with him surrendered to Gen. Sherman. Several years afterward Gen. Loring became engaged in the banking business in New York. Lack of success in a pursuit so alien to his temperament induced him in 1869 to accept an offer made him on behalf of Ismail Pasha, Khedive of Egypt, who was then reorganizing his army. Loring Pasha (for by this title he was thenceforward known) contributed most ably to the efficiency of the Egyptian army, into which he introduced many reforms. Chief in active command, Loring Pasha for six years had under him all the forces of Lower Egypt, and was also head of the

General, M. J. Cunningham; Superintendent of Public Education, Warren Easton; Register of Lands, J. L. Lobdell; Commissioner of Agriculture, Thompson J. Bird; Commissioner of Immigration, W. H. Harris; Supreme Court: Chief-Judge, Edward Bermudez; Associate Justices, Félix P. Poché, Robert B. Todd, Thomas C. Manning, and Charles E. Fenner.

Legislative Session.—The Legislature convened on May 10, and adjourned after a session of sixty days. The following were the principal acts of the session :

Concurrent resolution asking for an appropriation by Congress for the purpose of dredging and removing islands, sand-banks, and other obstructions of whatever nature they may be, from the mouth of Bayou Lafourche where it flows into the Gulf of Mexico.

Concurrent resolution relative to establishing a mechanical school, and memorializing the Congress of the United States for the donation of the United States Marine Hospital at New Orleans for that purpose.

An act for the relief of heirs of parties whose property may have been confiscated by the United States, in conformity with Article 57 of the Constitution.

An act to authorize the Board of Liquidation to contract with any bank or banks or capitalist to pay the interest on the consolidated or constitutional bonds of the State, and the warrants drawn against the general fund and expenses of the General Assembly.

Requiring all stores, shops, groceries, saloons, and all places of public business which are or may be conducted under any law of the State of Louisiana, or under any parochial or municipal law or ordinance, except those herein exempted, to be closed on Sundays, and forbidding all giving, trading, bartering, and selling on Sundays by the proprietors or employés of such establishments; declaring it a misdemeanor to violate the provisions of this act; and to fix penalties for all violations of the same; and to repeal all laws or parts of laws contrary to or inconsistent herewith.

An act providing for the appointment of police juries through the State of Louisiana by the Governor.

An act for the protection of actual settlers on State lands, defining the mode and manner by which such lands, possessed, improved, or cultivated, may be entered or purchased from the State, and regulating the duties of the Register of the State Land-Office in reference thereto.

Joint resolution proposing to submit to the electors of this State an amendment to Article 117, of the Constitution of 1879, in relation to the terms of the district courts (the parish of Orleans excepted).

An act declaring the competency of witnesses in criminal proceedings.

An act to "regulate the employment of children, young persons, and women in certain cases."

An act making it a crime for any person to practice or to offer to practice medicine or surgery in this State, for pay, without having first complied with the provisions of Act No. 31 of the acts of 1882, approved June 26, 1882, relative to the practice of medicine and surgery, and prescribing the punishment thereof.

An act authorizing the Register of the State Land-Office to advertise in newspapers, notifying all persons holding claims against the public domain of the State of Louisiana, or orders to refund, to file said claims, with the evidences, in the office of the Register of Lands on or before the first day of April, 1887; to authorize the Register to file and receipt for the same, and to report the same to the General Assembly at its next regular session; to recommend the appropriate relief thereof; to prohibit the Register from

settling any such claim until the General Assembly shall have passed thereon, and to appropriate a sum necessary to defray the expenses of this procedure.

An act to prescribe the manner in which special elections shall be held in the parishes, cities, and incorporated towns of this State, for the purpose of levying special taxes in aid of railway enterprises and providing for their enforcement and collection, and to carry into effect Article 242 of the Constitution of 1879.

An act in relation to sureties upon official bonds of the State, parochial or municipal officers, and making provisions in case of death or withdrawal.

Concurrent resolution relative to the erection of a monument to the memory of ex-President Zachary Taylor, to be located in the city of New Orleans, and requesting the aid of the national Congress.

An act to create the parish of Acadia, and to provide for the organization thereof.

An act to protect and advance agriculture by regulating the sale and purity of commercial fertilizers, and the guarantees and conditions upon which they are to be sold, and the penalties incurred by violations of such conditions; by providing for practical and other experiments in relation thereto; by reorganizing the Board of Agriculture, increasing its powers and those of the Commissioner of Agriculture, by creating an official chemist, defining his duties and powers, and by repealing laws in conflict herewith.

An act for the protection of the alluvial lands of the State, authorizing and instructing the State Board of Engineers to survey, stake out, and make estimates of the cost of certain levees, authorizing the board to solicit and accept aid from districts, parishes, municipalities, or individuals interested in the construction of said levees, authorizing and instructing the Board of Engineers to contract for the building of said levees, under certain circumstances, providing for payment for the same, and prescribing the fund to be used in such payment, and providing under certain circumstances that the lessees of the Penitentiary be required to perform the work, and authorizing the receipt of these certificates by the Auditor and Treasurer in payment of certain dues.

An act to encourage, protect, regulate, and develop the oyster industry in the State of Louisiana, and imposing penalties for the violation of the provisions of this act.

An act to levy, collect, and enforce payment of an annual license-tax upon persons, associations of persons, or business firms or corporations pursuing any trade, profession, vocation, calling, or business, except those who are expressly exempted from such license tax by Articles 206 and 207 of the Constitution.

An act to appropriate the sum of \$14,000 to the Southern University of New Orleans.

An act entitled an act to suppress gambling with dice on the public highways or streets of the towns and cities within the State of Louisiana, or within view of such public highways and streets, and to provide for the punishment thereof.

An act making it sufficient for plaintiffs and owners to recover in suits against railroad companies for loss of stock killed or injured by the railroads to prove the killing or injuring, unless it be shown by the defendant company that the killing or injuring was not the result of fault or carelessness on their part, or the negligent or indifferent running or management of their locomotives or trains.

An act providing for commutation of sentences for good behavior of convicts in the Penitentiary and parish prisons of this State.

An act in relation to insurance companies, corporations, association partnerships, and individuals of foreign governments doing fire-insurance business in this State, limiting publication or rendering of statements, determining capital subject to taxation, collection of same, penalties and requirements.

An act to grant relief to the wounded and disabled

Confederate soldiers of the State of Louisiana, and to the widows of Confederate soldiers, wounded, disabled, or killed during the late civil war, who are now in indigent circumstances.

An act to encourage sheep husbandry; to protect sheep from the ravages of dogs; to make it a misdemeanor to knowingly own a sheep-killing dog, and to provide a penalty for the same; and to invest police juries with power to pass certain ordinances, to declare the violation of such ordinances misdemeanor, and to provide the punishment thereof.

An act to prohibit the sale in this State of oleomargarine, butterine, or other substances as butter, and to provide a penalty for the violation of the same.

An act regulating insurance companies conducting business in this State, either domiciled or by agent, as to the rebate allowed.

An act making it a crime for any physician or practitioner of medicine to prescribe spirituous or intoxicating liquors with intent to evade or with intent to assist others to evade payment of any license required by any State law or parochial or municipal ordinance for the sale of said spirituous or intoxicating liquors, or with intent to evade or with intent to assist others to evade any such law or ordinance prohibiting the sale of said spirituous or intoxicating liquors, and to provide the punishment therefor.

An act to establish the rank and order of preference of privileges and pledges on crops.

An act for the protection of buyers from the fraudulent acts of nurserymen.

Joint resolution proposing to submit to the electors of the State an amendment to Article 207 of the Constitution of 1879 relative to exemption from taxation.

An act to regulate the hours of labor on and connected with the street railroads.

Speaking of the work of the session, the New Orleans "Picayune" says: "It is not to be forgotten that these alleged law-makers turned a deaf ear to appeals from the people who asked for legislation for the purification of the jury-box, for the protection of the ballot-box, for the vindication of the laws upon criminals, and for the securing of honest elections. It is not to be forgotten that the petitions of citizens for the institution of wholesome and needed reforms were treated with contempt and contumely in the halls of the State Capitol, and the prayers of petitioners were disregarded and their motives maligned and misrepresented."

The following are the chief provisions of the Sunday law:

That from and after Dec. 31, 1886, all stores, shops, saloons, and all places of public business which are or may be licensed under the law of the State of Louisiana, or under any parochial or municipal law or ordinance, and all plantation-stores, are hereby required to be closed at twelve o'clock on Saturday nights, and to remain closed continuously for twenty-four hours, during which period of time it shall not be lawful for the proprietors thereof to give, trade, barter, exchange, or sell any of the stock, or any article of merchandise kept in such establishment.

That whosoever shall violate the provisions of this act, for each offense shall be deemed guilty of a misdemeanor. The provisions of this act shall not apply to newsdealers, keepers of soda-fountains, places of resort for recreation and health, watering-places and public parks, nor prevent the sale of ice.

That the provisions of this act shall not apply to newspaper-offices, printing-offices, book-stores, drug-stores, apothecary-shops, public and private markets, bakeries, dairies, livery-stables, railroads, whether steam or horse; hotels, boarding-houses, steamboats,

and other vessels, warehouses for receiving and forwarding freights, restaurants, telegraph-offices and theatres, or any place of amusement, providing no intoxicating liquors are sold in the premises; provided, that stores may be opened for the purpose of selling anything necessary in sickness and for burial purposes; provided, that nothing in this act shall be construed so as to allow hotels or boarding-houses to sell or dispose of alcoholic liquors, except wine for table use, on Sundays; and provided further that no alcoholic, vinous, or malt liquors shall be given, traded, bartered, sold, or delivered, in any public place on said day, except when actually administered or prescribed by a practical physician in discharge of his professional duties in case of sickness; in such cases the physician administering the intoxicating liquors may charge therefor.

Finances.—The collection of taxes has been vigorous and close, and there has been a gradual increase in the percentage of collections since 1877-'78. The following statement will show the increase:

Taxes of 1877, collected in 1878, to Jan. 1, 1879, 41½ per cent.

Taxes of 1878, collected in 1879, to Jan. 1, 1880, 48½ per cent.

Taxes of 1880-'84, from 82 to 89 per cent.

Taxes of 1885, collections in the last four months and paid into the State treasury, 80 per cent.

"The necessities of the State," says the Governor, in his message to the Legislature, "will require an increase of revenue, and the best source from which to secure such increase is from licenses. Licenses by the existing law are not well graded, and in many instances the license levied is entirely too small. The licenses can and should be so graded as to realize a revenue of \$400,000, and this with the general fund tax will be ample for all expenses of the government."

In 1880 the total assessed value of property in the State amounted to \$177,096,459. In 1885 it amounted to \$212,725,566—an increase of over \$36,000,000.

The Governor recommends an amendment of the tax and assessment laws, so that more of the taxation, which now falls mainly on real estate, may be borne by personal and corporate property.

The bonded and floating debt of the State is as follows:

Four per cent. bonds and certificates	\$11,987,752 02
Coupons 1 to 11, inclusive.....	549,784 58
Baby bonds and coupons.....	1,497,025 39
Warrants 1878 and previous, fundable.....	16,395 65
Warrants 1878 and previous, neither fundable nor payable, having been issued since adoption of Constitution of 1879	4,605 72
Levee contractor and repair warrants, 1878 and previous	10,700 00
Total.....	\$13,930,264 86

The baby bonds were issued in pursuance of "miscellaneous ordinances" of the Constitution of 1879, and the payment of the interest on the bonds and their final redemption in six years were based upon taxes and licenses due prior to Jan. 1, 1879. These back taxes have been collected only in part, defective assessments and other irregularities in the years

in which they were due, making it impossible to collect them.

The appropriation bills for 1886 aggregated \$3,433,640. The following is a memorandum of finances to July 1, 1888:

Revenues, two years, on assessments, \$215,000,000, less 12½ per cent, on \$188,125,000, at 12 mills....	\$2,037,500
Estimated licenses, two years.....	750,000
Special fund Charity Hospital, two years.....	112,000
Rents of Penitentiary and St. Louis Hotel.....	58,000
One half back taxes, licenses, etc., for 1886, esti- mated on 1885 report.....	41,000
One half back interest on taxes, 1886, estimated on 1885 report.....	5,000
Cash balance May 1, 1886, with Treas- urer.....	\$350,000
Less appropriated for General Assem- bly, 1886.....	75,000
	275,000
	\$3,273,500
General appropriations bill, as reported from the House.....	\$3,438,640
Strike out school surplus of appropri- ation.....	100,000
	3,338,640
Deficit on the face for 1887-'88.....	\$60,140
Estimated sales of sw'mp lands, 1887-'88	\$12,000
Estimated redemption of property sales	1,000
	18,000
Deficit.....	\$47,140

Levees.—The levee-work undertaken and finished since the last session (1884) and the report of the State engineer, amounts to 57 miles of new levees and the raising and enlargement of 16 miles of old levees. The earthwork constructed amounts to 2,545,818 cubic yards, at a cost of \$504,405.59.

Special taxes have been voted by some of the Mississippi river parishes for the repair and preservation of levees, and above the mouth of Red river large and important levees have been constructed. Individuals have aided with private subscriptions, and the railroads have also assisted. By these efforts of parishes, citizens, and railroad corporations, 140 miles of levees, which were below the level of extreme floods, have been strengthened and raised from one to three feet above the highest water-mark.

The Opossum Fork levee was completed in March, 1886. This important work extends from the highlands on Amos Bayou to Arkansas City, 16 miles in length, located in Desha County, Arkansas. It closes numerous crevasses and large outlets from the Arkansas and Mississippi, and diverts from the Tensas Basin Levee District a considerable part of the overflow, which formerly spread over the alluvial lands of the district. It was constructed by the joint efforts of the State of Louisiana, the Mississippi River Commission, the Tensas Basin Levee District, and subscribers interested in lands in Arkansas protected by the levee.

The Governor considers that the levees are undoubtedly higher, stronger, and better than they have been at any time within the past twenty-five years.

The State University.—During the past two years this institution has greatly improved. A

chair of Agriculture has been added to the faculty, with an experiment station attached. The finances are in a healthy condition. The number of matriculates in 1885-'86 was 96. This small number, as compared with the number the previous year, 182, is due to the closing of the preparatory department, to raising the age and qualifications for admission, and also to raising the fees and requiring semi-annual instead of quarterly payments made in advance. Notwithstanding all this, the number of college students proper is about the same as in 1884-'85, while of higher grade.

Deaf and Dumb Institute.—The affairs of this institution have been well managed. The appropriation for building and repairing has been used economically. The main building has been repaired and improved in ventilation and sewerage, and a new building has been erected. The faculty is ample for instruction in oral and sign exercises, and in lip-reading and articulation. The average attendance is 40.

Institute for the Blind.—The report from this institution is very encouraging. The health of the pupils has been good, and this is attributable in a great degree to the calisthenic exercises inaugurated by the Board of Trustees. There are 32 inmates, and the cost of maintaining them for the past two years has been \$19,165.37.

The Southern University.—This institution was established by Article 231 of the Constitution, for the purpose of affording opportunity for higher education to the colored race. It has had an annual appropriation of \$10,000, and the Board of Trustees has faithfully and intelligently administered this fund for the purposes for which it was destined. The university has made rapid and gratifying progress, both in the attendance and the advancement of the students. The faculty is composed of white and colored teachers. The number of matriculates has induced the board to provide additional accommodations. They are now erecting on a large square of ground a large building, with all necessary appliances. This board is composed of representatives of both races, who have manifested an earnest desire to make this institution a credit to the State.

The Charity Hospital.—“The management of this institution,” says the Governor, “by the present Board of Administrators has been an important one in its history. The hospital had a deservedly high reputation before the present board took charge of its management, and the highest praise to be said of the administrators is that they have inaugurated such reforms and made such improvements that it is scarcely recognizable as the same institution, except by its outward appearance. The improvements have all been paid for.” In 1885 there were admitted for treatment 6,143 patients and 5,212 discharged, leaving 556 convalescent inmates on the 31st of December, 1885. There were 1,005 deaths, the death-rate being 14 per cent. There were 13,585

patients who received out-door medical treatment. In 1884 there were 10,604 patients thus treated, showing that the out-door clinic is gaining in importance and usefulness.

The Insane Asylum.—This institution has been greatly improved in the management and treatment of the unfortunate inmates, in the erection of new buildings or additions, and in the adornment of the grounds. There are now 600 patients in the asylum, and, at the present rate of increase, it is estimated that in the next two years the number will reach 800.

Railroads.—The Governor says: "There have been completed within the past few years 1,000 miles of railroad. These roads have added very much to the wealth of the State. There has been, through legislation and private co-operation, a very generous support to these roads. There is no disposition on the part of the people or their representatives to antagonize these interests or to oppress them with unnecessary laws; but railway companies, like all other corporations and private proprietors, become selfish, look to their own interests and ignore the rights of others. From nearly every section there are complaints against the discrimination these roads make in passenger and freight traffic."

LUDWIG II, King, of Bavaria, born Aug. 25, 1845; died by drowning in Starnberg Lake, June 13, 1886. He was the eldest son of King Maximilian II. His childhood and early youth were spent mostly in the castle of Hohen schwangau, in the Tyrol, where he imbibed a romantic love of Nature and a taste for solitude and meditation. He developed a strong artistic bent, inherited from his father and grandfather, and a thirst for all kinds of knowledge. Unlike his younger brother Otto, who became a soldier and took part in the Franco-Prussian War, but soon afterward became insane, he showed a repugnance to military affairs, and was timid and effeminate in his disposition. He early showed extravagant tastes and ignorance of the value of money, but was kept under very strict restraint, until by the death of his father he found himself the master of the exceedingly large Bavarian civil list, and able to gratify his most expensive whims. The Bavarians, who preserve in a remarkable degree the monarchical feeling, and are strongly attached to their ancient dynasty, hailed with delight the young King Ludwig on March 10, 1864, as the successor of the reactionary Maximilian II. Ludwig was eighteen years old when he ascended the throne, having been born on Aug. 25, 1845. He possessed remarkable intellectual gifts and accomplishments, was a model of physical vigor and beauty, and was much more liberal in his opinions than his father. After the War of 1866, when Bavaria took the side of Austria, and suffered a severe defeat from the Prussian troops, the King accepted the advice of the Liberal party, and when, in 1870, the fate of Germany depended on the action of Bavaria,

he gave way to the impulse of the strongest section of his subjects, and joined his lot with Prussia. The Bavarian troops did the bravest fighting of the war, and at its close Ludwig acted as the spokesman of the German princes in offering the crown of the empire to the King of Prussia. For his course during this critical epoch he was praised as a hero by the whole German nation. Long before this he had shown marked eccentricities of character. Those who came into occasional contact with him, whether diplomats, statesmen, scholars, or artists, were delighted with his charming manners, and the unusual knowledge, sense, and interest he displayed regarding their special branches. But those who knew him better were aware that this show of interest was entirely feigned, and that he regarded it as a proof of his great superiority to other men that he could thus deceive them. After a while he put aside all pretense of interest in the affairs of state. He began to absent himself from his capital, and would hold no consultations with his ministers, but assented to their proposals without listening to explanations. Public men knew that, instead of welcoming German unity, he was deeply chagrined at the sacrifice of Bavarian independence, and often expressed hatred for the house of Prussia and a bitter jealousy of the Crown Prince. They supposed that his neglect of the affairs of his kingdom was due to these feelings; but the popular image of Ludwig, as the most patriotic and German in sentiment of the princes of the empire were not disturbed by publishing facts that would destroy the fame of a national hero and raise doubts as to the stability of the empire. He spent large sums in mounting Wagner's operas on the stage in Munich, and thus rescued a great genius from oblivion and made his capital more truly a center of art than the first Ludwig had by filling the city with imitations of Greek and Florentine architecture. The building of the theatre at Baireuth was an appropriate though costly memorial of this artistic triumph. He formed a strong attachment for the composer, and with him planned the construction of a monumental theatre at Munich, but the people of the court, who feared that he would imbibe the democratic opinions of Wagner, defeated this project, and succeeded in putting a stop to the intimacy and driving the master away from Munich. Ludwig felt grief at the loss of his favorite companion, and became morose and more fond of solitude than ever. Through indignation on account of this interference with his inclinations, he remained away from the court and the capital as much as he could. In a short time insanity, the seeds of which he inherited from his mother's family, began to develop itself. The Bavarians saw their King grow more and more misanthropic. They knew that he entertained an exaggerated opinion of himself and of his dignity as a King. He began to show toward the guests of the palace by sin-

gular actions the contempt that he formerly studied to conceal. He betrayed an extraordinary aversion toward the whole female sex, not excepting his own mother. Gradually he began to absent himself altogether from the capital, returning only to witness operatic or dramatic representations, which he compelled the artists to perform with no spectator, in the dark and empty theatre, besides himself. In his various castles in the mountains he abandoned himself to a mania for building and decoration. The German myths and tales of chivalry, such as furnished the subjects of Wagner's operas, he had reproduced in every form of art. Overlooking his father's residence of Hohenschwangau, he built the beautiful castle of Neuschwanstein on the summit of a cliff. Unmistakable symptoms of madness began to show themselves in 1876. After a while he refused to hold any intercourse with educated people, and buried himself in the mountain castles of Hohenschwangau and Linderhof, a course in which he was encouraged by dependents who profited pecuniarily by his folly, and concealed his madness as far as possible, though in his attacks of mania he wounded as many as thirty persons. His ministers, with whom he would only communicate through his hostlers, dreaded the political consequences of a regency, thinking that Prince Luitpold was committed to a reactionary policy, and would place the Ultramontanists in power. In 1884 the extravagances of the mad King had involved him in debts to the amount of \$1,800,000. The ministry raised a loan to cover the debts, after obtaining a promise that he would cease building. But in a short time he gave orders for a new castle on a rocky height above Schwanstein, and began a palace at Herren-Chiemsee that he intended should rival Versailles. One of his follies was to imitate Louis XIV in everything. He labored incessantly on his architectural designs. His artistic knowledge and judgment were remarkable. The only aberration of his aesthetic perceptions was a craze for imitating Nature. He labored all night, and slept by day in a room that was fitted up with artificial trees, flowers, singing birds, a waterfall, and a vaulted ceiling representing a starry sky. In 1886 his new debts amounted to \$1,560,000. The palace in the Chiemsee, on a lonely island, had already cost \$2,500,000, and was only one third completed. By this time the King had become incapable of any intelligent effort, except musical improvisation, for which he had great genius. When the ministers determined to interfere, he was a raving maniac. Repeated threats that he would kill himself if they did not furnish him with money to complete his palaces, led them, with the concurrence of Prince Luitpold, to institute a judicial inquiry as to his sanity. A commission, headed by Baron Crailsheim, Minister of the Royal Household and of Foreign Affairs, went to his castle of Schwanstein on June 10, but were refused admittance by the guard.

After they had returned to the old castle, some gendarmes came and took them back as prisoners to Neuschwanstein, where they were locked over night in the lower part of the castle. When the King descended the following day, and found the statesmen and physicians, though he had commanded that their eyes should be put out, and that they should be confined in the dungeon that had been built in the castle, he expressed his willingness to go with Dr. von Gudden, and was taken to Castle Berg, on Starnberg Lake. He asked before leaving to be allowed to ascend the castle tower, but the doctor, knowing his suicidal purpose, refused. The King showed himself extremely amiable and sociable with Dr. von Gudden, and insisted on his always dining with him. On the second evening, June 18, they took a walk together through the park, as they had done the day before. During the walk Ludwig asked earnestly that the attendants should be sent away, so that they might speak privately together. The doctor, in order to gain the confidence and affection of his patient, commanded the servants to go back to the castle. The two passed along the shore of the lake. The water is very shallow, but the King knew of a deep hole, which has the reputation of never returning any body that is sunk in it. When he approached that place he threw off his coat and vest and rushed into the water. The doctor overtook him, but was strangled and drowned by Ludwig, who, though obese, possessed remarkable strength. The insane monarch drowned himself five minutes later, but before quite reaching the deep pool.

LUTHERANS. The Evangelical Lutheran Church in America embraces, in her annually increasing membership, not only those of American birth, but also Germans, Swedes, Norwegians, Danes, Finns, Icelanders, Slavonians, Bohemians, and Poles. The statistics for 1886 show a material increase over those of previous years, a net increase, according to Diehl's "German Almanac," of 175 pastors, 341 congregations, and 34,402 communicant members. The statistics, now more satisfactory than in former years, for the entire Church in America aggregate 3,987 pastors and professors, 7,598 congregations, and 940,926 communicant members. There are at present, according to Stall's "Year-Book" under the supervision of Lutherans and Lutheran synods, 19 theological seminaries, having 562 students (4 institutions not reporting) with 55 professors; 26 colleges, having 2,627 students (3 institutions not reporting), with 177 professors and instructors; 27 classical seminaries, having 2,108 students (3 institutions not reporting), with 117 instructors; 12 young ladies' seminaries, having 889 students and 100 instructors; and 47 benevolent institutions, e. g., orphans' homes, asylums, hospitals, immigrant missions, etc., where 84,686 (14 institutions not reporting) persons were cared for by the Church during the year. In this connection

may be mentioned the Deaconess Institution in Philadelphia, in connection with the German Hospital, largely under the control of the Church. The 134 Lutheran periodicals include 42 English, 53 German, 22 Norwegian, 9 Swedish, 2 Danish, 2 Icelandic, and 1 Finnish. Three of the general bodies held conventions during the year. Following are brief reports of their transactions and operations, together with a statistical report of each:

General Synod (North).—Organized in 1821. The last convention of this body was held in Harrisburg, Pa., in May, 1885 (see "Annual Cyclopædia" for 1885). The next convention will be held in Omaha, Nebr., June 1, 1887. This body is composed of the following twenty-three district synods:

NAME.	Organ- ized.	Minis- ters.	Congre- gations.	Member- ship.
Maryland...	1820	76	128	15,746
West Pennsylvania...	1825	78	138	19,449
Hartwick (N. Y.)...	1831	84	45	4,257
East Ohio...	1836	41	66	5,025
Franckean (N. Y.)...	1838	27	47	2,777
Allegheny (Pa.)...	1842	63	148	13,010
East Pennsylvania...	1842	75	108	14,272
Miami (Ohio)...	1844	28	38	3,643
Wittenberg (Ohio)...	1847	40	70	6,116
Olive Branch (Ind.)...	1848	20	29	2,546
Northern Illinois...	1851	32	41	2,464
Central Pennsylvania...	1855	40	82	7,766
Northern Indiana...	1855	38	82	3,713
Iowa...	1855	25	82	1,320
Southern Illinois...	1857	9	19	1,020
Pittsburg...	1866	28	61	4,835
Central Illinois...	1867	21	81	1,803
Susquehanna...	1867	88	78	8,232
Kansas...	1868	46	43	1,750
New York and New Jersey...	1871	56	53	11,916
Nebraska...	1873	60	92	2,569
Wartburg, German...	1876	27	34	4,491
Middle Tennessee...	1878	15	19	899
Total...	907	1,474	139,629	

The following institutions exist within the bounds of the General Synod: 5 theological seminaries, at Hartwick, N. Y., Gettysburg, Pa., Springfield, Ohio, Selinsgrove, Pa., and Chicago, Ill., with 64 students (1 institution not reporting), and 12 professors; 4 colleges, at Gettysburg, Pa., Springfield, Ohio, Carthage, Ill., and Guntur, India, with 455 students and professors; 2 academies and 3 benevolent institutions.

General Council.—This body, organized in 1867, is composed of the following eleven district synods, two of which, however, to wit, Norwegian and Iowa Synods, are not yet in organic connection, but annually send delegates to its conventions:

NAME.	Organ- ized.	Minis- ters.	Congre- gations.	Member- ship.
Ministerium of Pennsylvania...	1748	238	408	91,619
Ministerium of New York...	1736	94	97	27,708
Pittsburg Synod...	1845	94	185	17,598
Texas...	1851	32	50	5,500
German Iowa...	1854	181	337	30,000
English District of Ohio...	1857	81	64	8,233
Michigan...	1858	80	60	8,000
Swedish Augustana...	1860	224	484	62,586
Norwegian Augustana...	1860	26	54	7,000
Canada...	1861	24	64	7,200
Indiana...	1871	19	82	2,419
Total...	993	1,885	267,863	

There are within the bounds of the Council 4 theological seminaries, at Philadelphia, Rock Island, Ill., Mendota, Ill., and Beloit, Iowa, with 164 students and 9 professors; 7 colleges, at Rock Island, Ill., Allentown, Pa., Waverly, Iowa, Greenville, Pa., St. Peter, Minn., Rochester, N. Y., and Lindsborg, Kans., with 626 students and 47 professors; 4 academies, 2 ladies' seminaries, 1 deaconess institution, at Philadelphia, and 21 benevolent institutions.

The General Council of the Evangelical Lutheran Church in North America held its nineteenth annual convention in Trinity English Lutheran Church, Chicago, Ill., Oct. 21-27, 1886. The convention was opened with the full communion service. All the synods were represented by 94 delegates. Prof. Adolph Spaeth, D. D., of the Philadelphia Seminary, was re-elected president. The most important matters claiming the attention of the Council were its home and foreign missionary operations, consideration of ministerial acts, and the common order of service for English-speaking Lutherans.

The committee on foreign missions reported concerning the condition of affairs in the mission-field in India. The report shows that there are at present five missionaries in India; Rev. H. C. Schmidt, the senior missionary, at Rajahmundry; Rev. I. K. Poulsen, at Samalcotta; Rev. F. S. Dietrich, at Dowlaishwaram; Rev. F. J. MacCready, at Tallapudi; and Rev. W. Groenbury, superintendent of the schools at Rajahmundry. Besides these, the following statistics may be given, to wit: 4 wives of missionaries, 2 native ordained pastors, 7 native evangelists and catechists, 56 teachers, 381 scholars, 311 baptized in 1885 and 146 during the first six months of 1886, 1,901 baptized Christians. The expenses for the year were \$10,744.97; estimates for 1887, \$14,000.

The home-mission work is intrusted to three committees, English, German, and Swedish; but these committees have charge of only a small fraction of the missionary operations within the bounds of this body, while the district synods are carrying on extensive missionary operations within their respective territories, numbering more than 200 congregations or stations. The English committee reported mission-stations in Ohio, Illinois, Minnesota, and Dakota. Their expenses for the year were \$2,967.67. The German committee presented an interesting report of work done in a large number of States, from Canada to Texas, among the widely scattered German Lutherans. Their expenses were \$5,927.92. But no report showed such far-reaching results as that of the Swedish committee, which have charge of all the missions of the Swedish Synod. Among the missions mentioned, the principal ones are those in California, at San Francisco, San José, and Sacramento; in Oregon, at Portland and Astoria, including a Finnish church at the latter place; in Washington Territory, at Marshfield, Walley, Kokensen,

Tacoma, Seattle, Woodville, and Skaggit; in Idaho, at Cordelia and Moscow; in Utah, at Salt Lake, in the very citadel of Mormonism, and at Ogden; in Maine and other New England States, indeed, in all the Western and Northwestern States, embracing about 150 congregations and stations. The amount expended for this work was \$15,000.

The report of the immigrant mission at New York showed that during the year 11,700 immigrants were entertained at the Emigrant House, No. 26 State Street, 1,774 persons were aided. The income was \$15,052.85, and the expenditures \$14,831.85.

Among other matters of importance brought before the Council were reports on ministerial acts and the common order of service. Of the former, the orders for confirmation, confession, and absolution were adopted. The order for confession and absolution, preparatory to receiving the Lord's Supper, provides two formulas: one for personal confession of sinfulness and penitence by the individual communicant, when so desired, to the pastor, an order adopted from the Pomeranian liturgy of 1569; and the other order for the public confession customary, at present, in all Lutheran churches. Pressure of duties prevented the Council from considering other orders; the committee were, therefore, authorized to prepare and publish, in provisional form, the most important of the orders still to be considered, so as to supply, at least temporarily, the demand of the Church.

The report of the Common Order of Service (see "Annual Cyclopædia" for 1885, p. 552) was again considered, and the committee urged to complete their work. Along with considerable discussion concerning some alterations in the order of service of the Church-Book, the question arose of securing a uniform and standard English translation of the Augsburg Confession, and of Luther's Small Catechism for the entire Church. The following resolutions were adopted:

1. That the suggestion of the committee be approved, and that the joint committee of the three general bodies, which have united in the preparation of the Common Service Book, be requested to prepare as perfect a translation as possible of the Small Catechism of Luther and of the Augsburg Confession; and that they be urged to invite the co-operation in this work of such other Lutheran bodies in this country as use the English language.

2. That the Church-Book committee of the Council be authorized to procure a copy of the early English translation of the Augsburg Confession, and that the cost be paid out of the income of the English Church-Book.

3. That the Church-Book committee be instructed to revise the Church-Book, and to propose any such slight alterations as they may deem desirable for the consideration of the Council.

With reference to uniformity in statistical reports, the following resolutions were adopted:

1. That each of the synods be requested to provide in their parochial reports for a column for confirmed members, or those entitled to commune, and that every effort be made to provide for the filing up of this column by the respective pastors.

2. That each synod be requested to appoint a statistical secretary, to have in charge the collection of all the material for the parochial reports, and to prepare these reports for their minutes.

The next convention of the General Council will be in Greenville, Pa., in September, 1887.

Synodical Conference.—This body, organized in 1872, embraces the following district synods:

NAME.	Organized.	Ministers.	Congregations.	Membership.
Wisconsin	1845	117	192	58,681
Missouri, Ohio, and other States	1847	925	1,739	230,000
Minnesota	1860	45	65	8,000
English Conference of Missouri	1870	7	10	1,000
Total.....	.....	1,094	2,006	297,681

The following educational and benevolent institutions exist within the bounds of this body: 3 theological seminaries at, St. Louis, Mo., Springfield, Ill., and Milwaukee, Wis., having 251 students and 13 professors; 4 colleges, at Fort Wayne, Ind., Watertown, Wis., New Ulm, Minn., and Gravelton, Mo., having 484 students and 22 professors; 9 academies; and 10 benevolent institutions.

The Conference convened in Trinity Evangelical Lutheran Church, Detroit, Mich., Aug. 11-16, 1886. The Rev. J. Bading was re-elected president. The subject for the doctrinal discussion, to which a great deal of time was devoted, was "The Divine Origin of the Bible." This body is devoting most of its resources to the work of home-mission and mission work among the colored people of the South, particularly in Arkansas and Alabama. Their missionary operations may be classified as follows: Immigrant missions at New York and Baltimore, missions among the Jews, the colored people of the South (for which \$11,338.21 was contributed during the past four years), the Indians, and the immigrant members of the Church scattered all over the territory of the United States. Of work among the immigrants, they report 74 missionaries, 44 pastors doing mission work, and 525 mission stations, besides the fields of the regular missionaries.

The next convention will be held in Milwaukee, Wis., in August, 1888.

United Synod in the South.—The United Synod of the Evangelical Lutheran Church in the South, organized in 1886, embraces the eight Lutheran synods south of Maryland and the Ohio river, and east of the Mississippi river, as follow:

NAME.	Organized.	Ministers.	Congregations.	Membership.
North Carolina	1803	28	50	4,150
Tennessee	1820	30	85	8,409
South Carolina	1824	36	61	6,900
Virginia	1829	29	60	4,124
Southwest Virginia	1842	26	48	2,908
Mississippi	1855	8	11	421
Georgia	1860	8	19	1,214
Holston (Tenn.)	1861	15	26	1,663
Total.....	.....	180	860	29,688

The following educational institutions exist within the bounds of this body : 1 theological seminary at Newberry, S. C., having 4 students and 3 professors; 5 colleges, at Salem, Va., Newberry, S. C., Mount Pleasant and Dallas, N. C., and Mosheim, Tenn., having 580 students and 33 professors; 5 academies; and 6 female colleges.

The new "United Synod" takes the place among the other general bodies of that formerly occupied by the General Synod (South), organized in 1862, with the addition of the old Tennessee Synod, for many years an independent body, and the Holston Synod, since 1874 a member of the General Council. The old body, merged into this new organization, had served its day. It was provisional in its very character from the beginning, being mainly educational, and far in advance of the old order of things that prevailed for a long time in the Lutheran Church in the South; but it failed to unite the various synods that existed within the same territory, because its doctrinal basis did not give universal satisfaction. The new body, however, has adopted a basis of union (see "Annual Cyclopædia" for 1885) which has placed it in the front rank of confessional Lutheran synods in America. The union of the Lutheran Church in the South was consummated on Friday, June 25, which was the three hundred and fifty-sixth anniversary of the presentation of the Augsburg Confession, in the presence of the Emperor Charles V and the representatives and dignitaries of his empire—certainly a most happy coincidence. The following resolution, unanimously adopted, authorized the new organization to take up the work where the old Synod laid it down, to wit:

Resolved, That this General Synod, having been officially notified that an organization of the body contemplated by the action of the Diet, has been effected under the name of the United Synod of the Evangelical Lutheran Church in the South, this General Synod having completed such part of its business as is deemed proper under its separate existence, and having provided for the transmission of its unfinished business and the conduct of its church work to the care and action of said United Synod, does now and hereby merge the Evangelical Lutheran General Synod South into the said United Synod of the Evangelical Lutheran Church in the South.

The work contemplated in this resolution consists of the home and foreign mission work at the time in the hands of the Board of Missions, the copyrights of the Book of Worship and the Common Service-Book, and the care of the Theological Seminary.

The work of this Convention was necessarily preliminary. The Rev. D. M. Gilbert, D. D., of Winchester, Va., was elected the first president. The basis of union adopted by the Diet at Salisbury, N. C., in November, 1884, was adopted with an enthusiastic unanimity. The constitution recommended by the same Diet was properly amended and adopted. The work of the committee on the Common Service-Book was approved, and the book ordered to be

published as soon as it is completed. The committee on missions presented a gratifying report, and the Synod pledged its continuance of the support of the Guntur mission in India. The Synod also adopted a resolution looking toward the establishment of a home for disabled ministers and widows. A committee was appointed to report at the next convention concerning the establishment of a central theological seminary. The next convention will be held in Savannah, Ga., in November, 1887.

The following synods carry on their missionary, educational, and benevolent operations independent of the various general bodies, standing aloof from all intercourse with any other synod :

NAME.	Organ- ized.	Minis- ters.	Congre- gations.	Member- ship.
Joint Synod of Ohio.....	1818	266	443	64,500
Buffalo (N. Y.).....	1845	24	32	5,000
(German) Maryland Synod.....		7	9	1,000
Norwegian Lutheran.....	1853	230	715	66,216
Norwegian-Danish Lutheran Conference.....	1870	96	347	27,305
Danish Church in America.....	1872	86	85	5,000
German Augsburg.....	1875	83	42	8,800
Hauge's Norwegian Synod.....	1876	45	127	7,954
Danish Evangelical Lutheran Church Society.....	1884	12	36	8,000
Society of Icelanders in America.....	1885	2	14	1,420
Immanuel's Synod.....	1886	15	18	2,325
New York-Canada Ministry.....	1886	18	15	8,100
Without synodical connection.....		84	40	10,000
Total.....		813	1,923	206,120

RECAPITULATION.

NAME.	Minis- ters.	Congre- gations.	Member- ship.
General Synod (North).....	907	1,474	189,629
General Council.....	993	1,835	267,363
Synodical Conference.....	1,094	2,006	297,631
United Synod in the South.....	180	360	29,688
Independent Synods.....	813	1,923	206,120
Grand total.....	3,987	7,598	940,926

Common Order of Service.—The Common Order of Service for all English-speaking Lutherans in America, begun a few years ago, has been approved and adopted by the General Council, General Synod (North), and the United Synod in the South, and the joint committee of the three bodies has been authorized to complete their work and publish it as soon as possible.

This, when completed, will remove the present diversity of forms of worship, and give a uniformity to the entire church. The hope is very generally entertained that this work will prove to be the beginning of an organic union of a divided church; since a common service involves unanimity in the distinctive doctrines of the Lutheran Church. This work also promises to result in a standard English translation of the Augsburg Confession and of Luther's Small Cathechism—two of the confessional writings of the Lutheran Church, which are generally adopted and on which many would be ready to unite.

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MADAGASCAR, an island in the Indian Ocean, separated from the eastern coast of Africa by the Mozambique Channel. The Hova race, who have held the other tribes of the island in subjection, have adopted the Christian religion, and are organized into a kingdom on the European model. The reigning sovereign is Queen Ranavalona III, who was born in 1860, succeeded to the throne in 1883, and married the Prime Minister Rainilaiarivony. The government is an absolute monarchy, modified by customs having the force of law. The practical direction of affairs is in the hands of the Prime Minister.

Area and Population.—The area of Madagascar with the adjacent islands is estimated at 228,500 square miles. The population is about 3,500,000. The Hovas, although Christianity is the state religion, are many of them pagans. About one tenth of the population of the island profess to be Christians. On the coast are many Arab traders. There are also negroes, who were introduced as slaves. The chief occupations of the inhabitants are cattle-raising and agriculture. The capital of the Hova or Malagasy state is Antananarivo, in the center of the island, with from 80,000 to 100,000 inhabitants. The chief ports are Tamatave, on the eastern coast, with a population of 10,000, and Mojanga, on the northwestern coast, with 14,000 inhabitants.

Commerce.—The leading articles of export are India-rubber, hides, coffee, lard, sugar, vanilla, wax, gums, rice, and seeds. The trade is chiefly with Mauritius, Réunion, Great Britain, and France, and in recent times with the United States. The total trade is estimated at \$6,000,000 a year. The native manufactures are silk and woolen stuffs, textures from palm-fiber, and metal-work. The country produces all kinds of tropical and sub-tropical growths, and contains silver, copper, iron, coal, salt, and other minerals, but its chief wealth lies in its extensive forests, which abound in valuable woods of many kinds. The chief article of import is rum, which is brought from Mauritius. Other imports are cotton fabrics, petroleum, hardware, and crockery. During 1883 there entered the port of Tamatave 89 trading-vessels, of which 45 were French, 27 English, 9 German, and 8 American.

French Claims to Madagascar.—France established stations on the island of Madagascar in 1642, and under Louis XIV erected numerous forts and factories on the eastern coast. The Government of Great Britain recognized her pretensions in Madagascar in 1817. Afterward the ports on the main island had to be abandoned, but the French established themselves at Sainte Marie de Madagascar and Nossi-Bé, and took under their protectorate the Sakalava population of the northwestern coast.

The Hovas began to subjugate the other races about fifty years ago. Because they injured the interests of many French colonists, attempted to establish their dominion over the Sakalavas, and refused to recognize the suzerainty of France over the island, the Government of the republic undertook to assert its position by force of arms, and began hostilities in 1883, which were brought to a close in 1885, and a treaty of peace was signed on December 17 of that year.

Franco-Malagasy Negotiations.—The year 1883 terminated with a rupture of negotiations in regard to the points of difference between the French and the Hova Government. The Malagasy minister offered, on Nov. 26, 1883, to modify the law relating to land leases, and to pay \$200,000 to satisfy French claims, but insisted on the recognition of the independence of Madagascar. The French did not reply to his note, but began hostilities, as they had threatened. In 1884, M. Ferry telegraphed to M. Baudais to forego the claim of French suzerainty over the whole island, if the Hovas would engage not to exercise dominion over the Sakalava country in the northwest. Negotiations were reopened by Admiral Galibet and M. Baudais, but the Hovas refused to withdraw their garrisons from the northwest. Admiral Miot went to Madagascar in April, 1884, with instructions to establish the French protectorate in the northwest; to insist on the retention of Mojanga, and not to demand the recognition of a protectorate over the Hovas, but an engagement that no cession of territory should be granted to any other power, or the protectorate of any other power acknowledged. Admiral Miot demanded the withdrawal of the Hova garrisons north of Capes Bellone and St. Andrew; \$600,000 as compensation for damages; long leases of land; and the revision of the treaty of 1868. It was discovered that Englishmen had obtained leases for ninety-nine years. In a conference with Hova envoys the French officer refused to recognize Ranavalona as Queen of Madagascar, but would only allow her the title of Queen of Imarina. The French blockade proved ineffectual. M. Baudais urged an expedition against the Hovas in the center of the island, and reported that valuable discoveries of gold in the vicinity of the capital had been made, and that English missionaries and Americans were acquiring the mining privileges. Admiral Miot would not second the envoy's proposition for an invasion of Imarina, and when Admiral Galibet became Minister of Marine and the Colonies, M. Baudais was replaced by M. Patrimonio, in August, 1885. M. de Freycinet drew up a project for an arrangement whereby France should control the foreign relations of Madagascar, and maintain a

resident, with a guard at Antananarivo, who should preside over international relations, adjust litigation between French and Hovas in conjunction with a Malagasy judge, and judge Frenchmen according to their own law. The French were to enjoy freedom in respect to holding land and engaging laborers, and religious toleration. No war indemnity was to be demanded, but \$200,000 was to be paid as compensation for damages, and Mojanga or Tamatave held until the claim should be settled. The French were to assist Madagascar in case of war; to furnish engineers and instructors; and to retain the posts occupied from Anorontsanga to Vohemaro. M. Baudais, with the approval of Admiral Miot, had made unauthorized propositions to the Hova Government through M. Maigrot, the Italian consul at Antananarivo. When M. Patrimonio arrived at Tamatave on Oct. 16, 1885, finding that his predecessor had prejudiced the claims of the republic by irresponsible concessions, he returned to Zanzibar until the Hovas should make fresh advances to secure peace. Admiral Miot received an admonition to act in concert with the new consul-general. In November he was summoned again to Tainatave, and was given full powers to negotiate a peace, either alone or with Admiral Miot.

Treaty of Peace.—The French were convinced by the campaign of 1885 that the conquest of Madagascar was impracticable. The Hovas constantly improved in the use of European weapons, with which they were well supplied, and under the lead of English officers had become formidable adversaries. In June, 1885, a force set out under Col. Shervinton against the Sakalavas and French on the northwest coast. Cutting a road through the forests, they captured and sacked Jangoa, and routed another force at Beftina, consisting of 250 French troops, with three mitrailleuses and some ill-armed Sakalava auxiliaries. The Hovas numbered 400, and had one machine-gun. The victorious troops returned to Antananarivo on October 1. In one of the last engagements 3,000 Frenchmen made three desperate charges upon some earthworks, and lost sixty men in the vain attempt to storm the position. On Dec. 14, 1885, peace negotiations were opened, and on the 17th a treaty of peace was signed with Gen. Willoughby, the Hova plenipotentiary, on board the "Naide." The cruiser "Neilly" was instantly dispatched to Zanzibar, whence the news was sent that enabled M. de Freycinet on Dec. 22, 1885, to save the Government from defeat by announcing that the Hovas had accepted a peace recognizing a French protectorate. On Dec. 27 he sent a dispatch to the French ambassadors in Europe and America, saying that the treaty made no change in the rights secured to foreign powers by former treaties. The text of the treaty is as follows:

1. The Government of the French Republic will represent Madagascar in all its foreign relations. The

Malagasy abroad will be placed under the protection of France.

2. A resident representing the Government of the Republic will control the foreign relations of Madagascar without interfering in the internal administration of the country.

3. He will reside at Antananarivo with a military guard, and will be entitled to be received in private personal audience by the Queen.

4. The Malagasy authorities under the Queen will not intervene in questions arising between French subjects, or between French and foreign subjects. Actions at law between Frenchmen and Malagasy will be tried by the resident, assisted by a Malagasy judge.

5. Frenchmen will live under French law as regards the punishment of crimes and offenses committed in Madagascar.

6. French subjects may freely reside, travel, and carry on trade throughout the Queen's dominions; they will be entitled to lease for undetermined periods or to take leases for long periods, renewable at the sole pleasure of the contracting parties, land, houses, shops, and all other descriptions of real property, and may freely engage and take into their service on any footing any Malagasy subject who may be uninhibited by previous engagements. Leases and contracts with work-people will be certified in due form before the French resident and the magistrates of the country, and the strict execution of the provisions of such instruments will be guaranteed by the Government. At the death of a Frenchman who may have been the tenant of any landed or house property, his heirs will have the benefit of the remaining term of the lease concluded by the deceased, with the power of renewing the same. Frenchmen will only be called upon for the land-tax paid by the Malagasy. No person shall have access to the property or enter the establishments or houses occupied by Frenchmen or by any person in their service, except with the sanction of the French resident.

7. The Queen expressly confirms the guarantees stipulated by the treaty of Aug. 7, 1885, in favor of liberty of conscience and religious toleration.

8. The Queen's Government undertakes to pay the sum of 10,000,000 francs to be applied in the settlement of French claims liquidated before the last war, and in compensation for the damages suffered by foreign subjects by reason of that war. The investigation and settlement of these indemnities is left to the French Government.

9. Until payment in full of the above-mentioned sum, French troops will occupy Tamatave.

10. No claim will be admitted in connection with the measures taken up to the present by the French military authorities.

11. The Government of the French Republic undertakes to lend assistance to the Queen for the defense of her states.

12. The Queen will continue as heretofore to preside over the internal administration of the whole island.

13. In consideration of these engagements, the French Republic agrees to desist from any renewal of its demand for a war indemnity.

14. The Government of the French Republic, in order to aid the advance of the Malagasy Government and people on the path of civilization and progress, undertakes to place at the Queen's disposal the military instructors, engineers, professors, and artisan foremen, whose services may be applied for.

15. The Queen expressly undertakes to treat with good-will the Sakalavas and Antankares agreeably to the information on this subject furnished by the French Government. The Government of the republic reserves to itself the right of occupying the Bay of Diego Suarez and of creating there the establishments that it may consider desirable.

16. The President of the French Republic and the Queen grant a general and complete amnesty, accom-

panied by the raising of all sequestrations placed upon their property, to their respective subjects who, prior to the conclusion of peace, compromised themselves by serving the other contracting party.

17. The actually existing treaties and conventions between the French Republic and the Queen are expressly confirmed in so far as they may not be contrary to stipulations of the present treaty.

18. The present treaty has been drawn up in French and Malagasy, the two versions having exactly the same sense, so that the two texts may be legally cited in every respect.

19. The present treaty shall be ratified within a period of three months.

A secret convention was signed the same day, by which Madagascar bound herself to make no cession of a port or of territory to any other foreign power. A dispute at once arose between the French, and the Hovas and their English friends, as to whether the relations established by the treaty were those of a protectorate. M. de Freycinet asserted that France really acquired a political protectorate over Madagascar, but the Hovas declared that no right of a protectorate of any kind had been ceded.

After the signature of the treaty, Rainilaarivony objected to certain clauses as being too comprehensive, and sent a draft of an explanatory note to Gen. Willoughby, directing him to obtain from the French plenipotentiaries an explanatory letter of like import. The French representatives accepted the proposed qualifications, and gave a note to that effect to Gen. Willoughby on Jan. 9, 1886, on the reception of which he ratified the treaty on behalf of the Queen on the following day.

Fresh Disputes with France. — M. le Myre de Vilars, who was appointed resident-general at Antananarivo, arrived in June. He established himself in the capital, with an escort of 36 French soldiers, and held weekly conferences with the Prime Minister. His relations with the Hovas were seemingly very cordial. They accepted the French protectorate with apparent satisfaction, and professed a willingness to refer all external questions to the French resident. At the same time they strove to thwart all French plans and escape the practical exercise of French control or influence entirely. M. de Freycinet, soon after the conclusion of the treaty, disclaimed any intention of placing obstacles in the way of the free development of private interests in the island, whatever may be the nationalities concerned. He said to the Madagascar committee of the French Chamber that the treaty would really establish a political protectorate, but without affecting existing treaties, and that the French resident, though not entitled to interfere in internal affairs, would so act as to develop French influence. The protectorate that the Hovas sought to evade was obtained on the condition of acknowledging the sovereign as Queen of all Madagascar. When the French began to establish themselves in the Bay of Diego Suarez, to build barracks and arsenals, and to strengthen the garrison, the Hovas took

measures, in virtue of the sovereign rights that were now recognized by France, to assert their rights over the Sakalavas, who had never been more than half subjugated, and who had been supported in their resistance by the French. They established military stations among the hostile population, and endeavored to reduce the northern half of the island to their sway, in order to make it impossible for the French, in the event of the renewal of hostilities, to march upon Antananarivo. The French aimed to establish settlements among the friendly population of the northern half of the island. This region is the only part of Madagascar suitable at present for French colonization, and is of special value to the French because it contains rich grazing-lands from which the colony of Réunion can be supplied with cattle. They hastened to establish a military station and port at Diego Suarez in order to support the Sakalavas by their presence, and prevent the Hovas from seizing the country and defeating their colonial objects. The treaty of Dec. 17, 1885, empowered the French to take possession of as much of the coast-land on the bay as should be necessary for their installations. This was one of the features in the treaty to which Rainilaarivony objected on the ground that the stipulation was too indefinite and elastic. In the explanatory letter, which the Malagasy Government affirmed to be of the nature of an appendix to the treaty or protocol, without which the treaty would not have been ratified, the territory skirting the bay ceded to France was limited to $1\frac{1}{2}$ mile on the southern and western sides and four miles on the northern side. This concession in particular, and the entire explanatory letter, which confined the scope of the resident's authority to external politics, were repudiated by M. de Freycinet as soon as they were communicated to him. The French afterward affirmed that they could claim under the treaty any or all of the territory up to the mountains encircling the bay, and announced that the French territory would actually be limited to ten kilometres from the shore.

Gen. Willoughby and the English missionaries and speculators encouraged the crafty Prime Minister in his efforts to render the treaty a dead letter. Before the French resident had been long in Antananarivo, a question arose that was more serious than that of the delimitation at Diego Suarez. An English company was found ready to advance the 10,000,000 francs of war indemnity, on the condition that the administration of the customs should be handed over to them until they had recovered the loan out of the part assigned for the purpose. They were also granted a concession to establish a bank. About the same time Gen. Digby Willoughby was dispatched on a mission to the governments of Europe with a commission as ambassador of the Queen of Madagascar. On August 31, M. le Myre de Vilars had an interview with Rainilaarivony in which he informed the Prime Minister (1) that

the explanatory letter is considered by the French Government as null and void; (2) that the loan contracted with an English banking-house was disapproved by the French Government, which would not accept the payment of the indemnity with money obtained on such conditions, and would not evacuate Tamatave, or allow natives of France to pay customs to the agents of an English bank; (3) that France asserted her right to select the limit of nearly eight miles for her possession at the Bay of Diego Suarez; (4) that Gen. Willoughby's mission was an infringement of the treaty, and that he ought to be recalled, or his powers withdrawn. Rainafiarivony, in his reply, said that he would not consent to the annulment of the appendix, which he considered to be of equal force with the treaty, but would agree to a limit at the Bay of Diego Suarez, a little greater than that indicated, if it were in writing. Concerning the mission of Gen. Willoughby, he explained that it was not intended to be of a political but principally of a friendly character. The French resident said that he would take the foreign affairs into his own hands, and would relieve the consuls at Mauritius and London of their duties. The Prime Minister replied that in political questions France would represent Madagascar abroad. If the consuls found political matters before them, they would refer them to the French resident, but in regard to all other matters the Malagasy Government had the right to treat with foreign powers. In a postscript to the letter explaining and restricting the treaty, the Malagasy Government were empowered to make any treaties of commerce they see fit.

When Gen. Willoughby reached Europe he visited Paris and presented his credentials to the Minister of Foreign Affairs, but M. de Freycinet would not receive him. On November 12 he addressed a letter from the Malagasy embassy, which he established in London, to the French minister, in which he said that France and Madagascar are at serious variance, respecting the interpretation of the treaty, and the differences are bound to endure so long as France thinks fit to treat the Queen's envoy in Europe in a temporizing manner. He threatened that, if the French agent interfered in the internal administration of Madagascar on such points as the raising of loans and the leasing of customs, hostilities would be renewed.

French Colonization.—The Madagascar credit voted by the French Chamber provided the sum of 200,000 francs for barracks, magazines, and a hospital on the Bay of Diego Suarez. There are two inhabited places in the French territory, one on each side of the bay. The arsenal and other buildings are in Antsirano. The other town is Diego Suarez, which was first established in June, 1886. The locality is more healthful. Many French colonists settled in this region, and great numbers went to Tamatave. They were mostly people of small means. French merchants and Catholic mis-

sionaries established themselves at the Hova capital, but neither Catholics nor Frenchmen were cordially welcomed by the inhabitants.

MAINE. State Government.—The following were the State officers during the year: Governor, Frederick Robie, Republican; Secretary of State, Oramandel Smith; Treasurer, Edwin C. Burleigh; Attorney-General, Orville D. Baker; Superintendent of Common Schools, Nelson A. Luce; Railroad Commissioners, A. W. Wildes, John Fehnderson, and D. N. Mortland. Supreme Court: Chief-Judge, John A. Peters; Associate Judges, Charles W. Whelton, Thomas F. Haskell, Charles Danforth, William W. Virgin, Enoch Foster, Artemas Libbey, and Lucilius A. Emery.

Finances.—The Governor recommends that the State tax be reduced by the sum of \$235,945.33, which is 26 $\frac{2}{3}$ per cent. of the total amount now levied. The condition of the State finances, according to the annual report of the Treasurer, will justify this step. The nominal amount of the bonded debt of the State is \$5,157,000, all of which is due and payable in 1889—\$2,330,000 in June and \$2,827,000 in October. In offset to the total amount of the debt, there is in the treasury a sinking-fund of \$2,110,390.57. This fund is composed of State bonds to the amount of \$1,161,500; United States bonds, \$834,300; New Hampshire State bonds, \$92,600; and Massachusetts State bonds, \$21,000. The premium on the three last-named securities amounts, according to the statement of the Treasurer, to \$247,260,000, thus making the aggregate value of the sinking-fund \$2,357,650.57. Deducting the sinking-fund at its actual value, the aggregate debt of the State which remains to be provided for is \$2,799,349.43.

To provide for the State debt still remaining, the Governor recommends that a refunding bill be enacted, giving the Treasurer the right to sell to the highest bidder bonds of the State of Maine to an amount not exceeding \$2,800,000, the bonds to run for thirty years at 3 per cent., interest to be paid semi-annually. He also recommends that for the ultimate redemption of these new bonds a sinking-fund be established, amounting to 1 per cent. annually of the whole amount.

The suspension of the interest on the State bonds now held in the sinking-fund, together with the suspension of the \$80,000 annual contribution to that fund and the termination of the \$50,000 for direct payment of State debt, form the groundwork for the reduction of the State tax recommended.

The State tax to be levied in 1887, after the reduction referred to, will amount to 2 $\frac{1}{4}$ mills on the dollar of State valuation, or 27 $\frac{1}{2}$ cents on each \$100. But it must be noted that 1 mill of the 2 $\frac{1}{4}$ is especially levied for the school fund. This tax is levied according to property, and divided among the towns according to the number of pupils. Deducting this mill-tax for schools, the State tax proper for the ensuing

year will be only 1½ mill, which is the lowest rate of State tax for support of the government that has been levied within fifty years, with the exception of the tax levied by the Legislatures of 1846, 1860, and 1861.

In 1868 the State debt was \$8,100,000, and every dollar, except \$699,000, was incurred on account of the war for the suppression of the rebellion. The payment of \$5,300,000, which has been made on the principal, leaves only \$2,800,000 of the debt, and will impose a tax for interest of only \$84,000 per annum. If anything more were needed to guarantee the high credit of the State, it would be found in the constitutional provision which prohibits the incurring of any obligation in excess of \$300,000, except for purposes of war.

The total receipts for the year were \$1,245,350.78, and the expenditures \$1,245,015.85. The cash balance Dec. 1, 1885, was \$318,516.52, and Dec. 1, 1886, it was \$318,851.45. The receipts for the year were derived from the following sources: State taxes, \$855,874.04; county taxes, \$12,560.76; tax on savings-banks, \$235,015.90; tax on railroad, telegraph, express, and insurance companies, \$113,597.50; interest on deposits and taxes, \$2,017.01; miscellaneous sources, \$26,875.57. Some of the larger expenditures were as follow: On account of public debt, \$59,000; interest on public debt, \$312,791; sinking-fund, \$80,479.95; educational purposes, \$388,354.01; agricultural purposes, \$18,807.06; penal and reformatory institutions, \$24,100; deaf, dumb, and blind, \$16,673.39; protection of fish and game, \$10,205.62; insane State beneficiaries and State paupers, \$56,840.61; pensions, \$23,805.68; railroad and telegraph tax paid to towns and cities, \$21,536.85; Indian tribes, \$19,290.85; county taxes collected in 1885 and paid to counties, \$12,519.18; miscellaneous and current expenses of the State government, \$168,530.26.

Charitable and Penal Institutions.—The Hospital for the Insane shows commendable progress in every provision for the comfort and cure of the inmates. At the beginning of the year, Dec. 1, 1885, there were resident in the hospital 486 patients—241 men and 245 women; 231 have been admitted since—127 men and 104 women; making the whole number under treatment 717—368 men and 349 women. Of these there have been discharged 189—106 men and 83 women; leaving at the close of the year 528—262 men and 266 women. The hospital has now been in operation forty-six years, during which time 6,844 patients have been admitted, and 6,316 have been discharged.

The Reform School for Boys is well conducted. The trustees will ask for an appropriation for an experiment of the cottage plan, where the boys are treated as though they were in a family, having smaller numbers associated together, and thereby increasing the direct influence of those to whose charge they are committed.

Of the State Prison the Governor says:

"The work of the prisoners, principally engaged on carriage-making, is of a very excellent order. The carriages, I think, are not sold at prices to interfere with the rights or interests of citizens of the State who are engaged in the same line of business. It is, of course, necessary to keep the prisoners engaged in work, both with the view to proper economy and the view to their improvement and reformation. It would be utterly cruel to keep them in idleness, and it would be utterly useless to work them except to some good end."

The Industrial School for Girls, established some years since at Hallowell, has saved a large number of girls from unfortunate surroundings and has secured for them respectable employment.

The Military and Naval Asylum for Orphans, at Bath, is well managed, and continues to deserve the confidence and patronage of the State. There is some effort made to enlarge the basis of admission to its privileges.

The last Legislature had under consideration the subject of establishing a separate reformatory for the female criminal class. It then received a large degree of approbation from the members of both Senate and House.

The provision for educating the blind and also the deaf and dumb children of the State has thus far proved adequate. These unfortunate children have had the advantages of the best institutions in other States. There is a wish expressed by many for a State institution to carry forward the work, but the Governor does not recommend its establishment.

Prohibition.—On this subject the Governor says:

The question of the prohibition of the liquor-traffic in Maine has engaged popular attention within the past year to a considerable extent. The agitation has resulted in a reaffirmation on the part of the people, at the polls, of their full faith in the prohibitory system, and of their desire to see the law fairly administered and properly enforced. The situation in the State respecting the law may be briefly and candidly stated. In from three fourths to four fifths of the towns of the State the law is well enforced, and has practically abolished the sale of spirituous and malt liquors as a beverage. In the larger cities and towns, on the seaboard, and at railway centers, it has been found more difficult to secure perfect compliance with the law, but it can still be said that at very few points in the State is liquor openly sold. The offenses against the law are in large part clandestine, and therefore difficult to detect and expose by legal testimony. But it is a great moral gain when the liquor-seller is driven from the light of day to secret places and to stealthy devices to carry on his hurtful and demoralizing traffic. Some of the more zealous friends of the temperance cause think that an increase of the penalties, especially for the first offense of liquor-selling, would cure the admitted evil of imperfect enforcement; but the more prudent, and I think by far a larger number, are of the opinion that an increase of the penalty would do harm rather than good. What is actually needed at the points named is a sound public opinion to urge and uphold the enforcement of the law. Where that is wanting the case is made difficult with the prohibitory law, as indeed it always is with every form of law. It can, however, be said with satisfaction that, even with this imperfect enforcement at certain points, the law has been of immeasurable value in reducing the liquor-

traffic, and has correspondingly increased the wealth of the State by increasing the sobriety of the people and saving the fruits of industry. One evil, inseparable from a law enacted after a strong popular contest, is that the prevailing side is looked to as the one to enforce its provisions; whereas every law should be as binding upon those who opposed its enactment as upon those who labored for it. The experience of Maine for the past thirty years abundantly justifies the adoption of the prohibitory system, and it will be the duty of the Legislature to add to its efficiency in whatever way, after full and impartial investigation may be found practicable, always remembering that legal penalties must be kept inside, and not pressed beyond, the bounds of public opinion.

Savings-Banks.—The fifty-four savings-banks show that a large surplus is in the hands of the mass of the people. On November 1 the aggregate deposits in those banks were in excess of \$38,000,000. The wide distribution of ownership of this large sum of money is shown by the fact that the number of depositors was 114,691; and of this number more than 90,000 owned less than \$500 each. The increase of deposits in the past year was more than \$2,000,000; of depositors, 5,293.

Educational.—Popular education is making good progress. The percentage of illiteracy in Maine is very small. The Agricultural College is doing a good work. Its farm contains 315 acres. The endowment fund established by the national Government amounts to \$181,300, and yields an annual revenue of \$7,438. Ex-Gov. Coburn increased the endowment by \$100,000. The State appropriations have amounted to \$212,618. The buildings are valued at \$125,000; the apparatus at \$15,000; the library at \$7,000; the farm-tools, stock, carriages, etc., at \$18,000; making a total of \$165,000. The amount from the State devoted to instruction has averaged approximately \$3,500 a year. The number of graduates is 238; non-graduates, 263. The latter class has pursued studies at the college through periods ranging, in individual cases, from one term to three and a half years, averaging one and a half year. These numbers do not include the 103 students now catalogued, and it appears that 604 students have enjoyed, or are enjoying, the advantages of the courses of instruction.

The number of graduates prior to June, 1886, was 222. Of these, 11 have died, leaving 211. An examination made in July disclosed the fact that of these 18 are farmers, and 11 specialists in agriculture; 38 civil engineers, 22 mechanical engineers, and 15 engaged in manufacturing, making 49 per cent. engaged in these forms of industry. Of the 107 graduates remaining, 30 are teachers and 31 engaged temporarily in miscellaneous callings. Of the living graduates under notice, 9 per cent. are engaged in the professions, and 31 employed in other industries. Of the living non-graduates whose occupations are known, 13 per cent. are in the professions, and 87 per cent. in industries.

The latest published school statistics, being those for the years 1884-'85, include the following items:

Total current school resources.....	\$1,065,789
Decrease.....	\$25,275
Total current expenditures.....	\$1,065,077
Decrease.....	\$14,005
Amounts paid for new school-houses.....	\$48,123
Decrease.....	\$34,746
Whole number of pupils in the State.....	214,121
Increase over 1884.....	597
Average daily attendance in winter schools.....	99,964
Decrease.....	666
Whole number of different schools.....	4,832
Increase.....	18
Number of different teachers employed during the year.....	7,596
Increase.....	143
Average wages of male teachers per month, exclusive of board.....	\$32 07
Decrease.....	\$0 52
Average wages of female teachers per month, exclusive of board.....	\$15 84
Decrease.....	\$0 44

The condition of the normal schools varies but little. Following are statistics:

SCHOOL.	Number entering.	Number graduating.	Largest attendance.
Castine.....	85	40	120
Farmington.....	121	27	140
Gorham.....	61	82	84
Totals.....	267	99	844

Of the total appropriation of \$21,500 for normal schools, a balance of \$26 remained undrawn. The attendance at the Madawaska Training-School was the largest the school has ever had, registering 144.

Fish and Game Laws.—The Governor, in his message to the Legislature of 1887, says:

The laws for the preservation and increase of fish and game in the State should be rigidly enforced, and, if necessary, additional provisions should be enacted. I call your attention to the report of the commissioners on this subject. The laws already enacted are valuable and beneficial in their operation and effect. Under their enforcement fish and game are both rapidly increasing in the State. The opposition to these laws, and the determination to violate them, led to a deplorable crime in the county of Washington in November last, but I trust such an occurrence will stimulate and not discourage the enforcement of the law. I suggest that an inquiry be made, whether the State should not make some provision for the families of the two men who lost their lives in the line of their duty while enforcing the laws of the State. It is important to have a proper public sentiment on this question. Those who oppose these laws and insist on fishing and hunting in unlawful ways and without regard to seasons are as unwise as those would be who, with a famine impending, should insist on devouring the seed-corn. Unless these laws be rigidly maintained, there is danger that we shall ultimately have no fish in our waters and no game in our forests.

Butter and Cheese Factories.—An account of the dairying operations of the State for the year is given. The following are returns from cheese-factories:

FACTORIES.	Lbs. of milk used during the year.	Pounds of cheese made.	Amount received for manufactured product.
North Newburg .....	.....	.....	\$2,704 00
Milo.....	72,857	.....	.....
East Sangerville.....	219,659	19,883	1,963 80
Wayne.....	170,755	19,287	1,928 70
North Livermore.....	157,369	16,369	1,638 90
North Turner.....	.....	70,000	7,000 00
Buckfield and Turner.....	60,881	6,590	118 54

The following table will show what the butter-factories of the State did during the year ending July 1, 1886:

FACTORIES.	Amount paid for cream.	Amount received for product.
Poland factory.....	\$11,953 70	\$15,010 78
Sabat's factory.....	4,850 00	6,800 00
Skowhegan factory.....	8,170 82	11,844 82
St. Albans factory.....	24,500 00	30,550 00
New Gloucester factory.....	17,237 50	21,312 14
Winthrop factory.....	18,500 00	.....

Live-Stock.—A census of the State was taken for 1886, with the following result:

KIND.	Number.	Average price.	Value.
Horses.....	90,288	\$88 80	\$7,672,453
Cows.....	165,353	30 10	4,977,125
Oxen.....	187,030	20 89	5,590,174
Sheep.....	537,407	2 15	1,156,771
Hogs.....	70,702	8 78	620,760

Manufacturing.—The following table shows the value of the lumber-products of the State in 1885 and 1886:

PRODUCT.	1885.	1886.
Boards, clapboards, deals, joists, plank and scantling, etc., feet.....	\$84,302	\$1,062,839
Laths, palings, pickets, etc.....	126,512	160,808
Shingles.....	69,818	72,905
Box-shoos.....	5,258	4,267
Other shooks, staves, and headings.....	2,124	5,841
Telegraph and other poles.....	524	212
Logs, masts, spars, etc.....	88,800	18,818
Timber, sawn and hewn, cubic feet.....	76	4,401
Other products.....	498	.....
Total.....	\$1,117,892	\$1,322,105

Political.—The Republican State Convention met at Lewiston on June 9, and nominated Joseph R. Bodwell for Governor. The following are the chief declarations of the platform:

That the Morrison tariff bill reported from a Democratic Committee of Ways and Means, and supported by the great body of the Democratic members of Congress, aims with apparently special malevolence to injure the material interests of Maine. By its provisions all the manufacturers of Maine are deprived of a protective duty; the farm-products of Canada are to be admitted to free competition with the farm-products of Maine; the lumber of Canada to free competition with the lumber of Maine; the fishermen of Nova Scotia are put on a better basis than the fishermen of Maine; and as a fitting climax the ship-building interest of Maine is to be broken down by admitting foreign-built ships to American registry free of all charge or duty. In short, so far as Maine is concerned, the Morrison tariff bill aims to promote foreign interests instead of home interests. We therefore denounce the action of the Democratic State Convention in approving this bill as traitorous to the leading interests of the State.

That the Democratic representatives in Congress who propose to surrender the free market of the United States to Canadian fishermen, while Canada prohibits American fishermen obtaining in their waters reciprocal privileges, are guilty of an act which is at once illogical and unpatriotic; an act which must have originated in sectional malice or have been the offspring of ignorance. If consummated, it would certainly result in the total destruction of the fishery interest of the United States on the Atlantic coast.

That in the judgment of this convention, no manu-

faturing establishment in Maine should extend the length of a day's labor beyond ten hours.

That this convention recommends that the next Legislature of the State shall enact a law prescribing fifteen years as the earliest age at which children may be regularly employed in factories, or some kindred law calculated to guard and protect youth of tender years.

That we command to the next Legislature a careful revision of the labor system in the State Prison, to the end that the labor of the convicts be so adjusted as not to come in competition with the honest calling of any citizen of the State.

That the Republicans of Maine now, as heretofore, indorse and approve the law for the prohibition of the sale of intoxicating liquors. The law and its several amendments were enacted by Republican legislators, and this convention now declare, in answer to misrepresentations in many quarters, that the general effect of the prohibitory law has been beneficent and has proved in a marked degree helpful to the cause of temperance in Maine. It has largely reduced the consumption of alcoholic liquors, and has in many ways contributed to the moral and material welfare of the State.

That the Republicans of Maine, having cordially and in good faith contributed through their senators and representatives to the enactment of the civil-service law, sincerely regret that under a Democratic administration of the Government its efficiency has been greatly impaired, and that its destruction is now menaced by a bill pending in the Democratic House, reported from a Democratic committee.

The Democratic State Convention was held in Bangor on June 2. Clark S. Edwards was nominated for Governor. The Prohibition State Convention met at Portland on June 16, and nominated Aaron Clark for Governor. The following is an abstract of the platform:

We express our gratitude to God for the progress thus far made in this reform, and we tender thanks to the citizens of Maine, including the W. C. T. U., who aided in securing a constitutional prohibition of the liquor-traffic, temperance text-books in our schools, and such laws against the sale of alcoholic beverages as we now possess. The impressions of thousands of candid observers in every part of the State, the records of our courts, the deposits in the savings-banks of Maine as compared with other States, the small proportion of taxes collected by the United States authorities for the sale of liquor in Maine, the total destruction of the manufacture of alcoholic drinks in the State, and the vast increase of sentiment in favor of total abstinence, may fairly show that Maine leads in this reform, and is a quarter of a century ahead of license States.

It affirms that both parties contain a new element, which will not allow the enforcement of the prohibitory law, and that such a law ought to be enforced, while it is part of the organic law of the State. In the principal cities of the State there is no impartial enforcement of the law. The Republican party regards the work thus far accomplished as its utmost effort for prohibition. The Republican party is afraid to enforce the law. The vote for prohibition is not simply local, but its influence will be wide, and encourage States now struggling for prohibition. We aim at the application of Christian principles to politics, the doing away with vituperation in political contests, the abolition of polygamy, the better condition of Indians, and of the colored people at the South.

The State election, which occurred on the 13th of September, resulted in the success of the Republican ticket. The vote was as follows: Republican, 68,891; Democratic, 56,272; Prohibition, 3,873; scattering, 17. Four Re-

publican Congressmen were elected. The Legislature consists of 27 Republicans and 4 opposition in the Senate, and 122 Republicans and 29 Opposition in the House.

MANITOBA, PROVINCE OF. The Provincial Cabinet underwent reconstruction in September of 1886. The Premier and Provincial Treasurer, Mr. Norquay, was appointed Railway Commissioner under an act passed at the last session of the Legislature. Mr. La Riviere was appointed Provincial Treasurer, and Dr. Harrison succeeded the latter as Minister of Statistics and Health. Mr. C. P. Brown became Provincial Secretary, and Dr. Wilson Minister of Public Works. At the general elections, which took place on December 9, the Norquay government (Conservative) was sustained, but by a reduced majority.

The exports of the province of Manitoba for the fiscal year ending June 30, 1885, amounted to \$1,083,528, the whole going to Great Britain and the United States, \$895,402 to the former and \$188,126 to the latter country. The bulk of the exports consisted of animals and their products.

Legislation.—At the session of 1886 many bills, including some important measures, were passed. Among them were acts providing for a redistribution of seats, giving increased representation to the western part of the province, extending the franchise, and introducing vote by ballot. A resolution was passed recognizing the propriety of the monopoly clause in the charter of the Canadian Pacific Railway, as essential to obtaining the construction of the line, but expressing the opinion that on the opening of the line from the Atlantic to the Pacific steps should be taken by the Dominion Parliament to secure from the company a relinquishment of the monopoly privilege. A subsidy of \$1,000,000 in 4-per-cent. Manitoba debentures, offered by resolution of the Legislature at its previous session, on the completion of a railway from Hudson Bay to a point on the Canadian Pacific Railway, not having been accepted, a select committee was appointed on the subject. An arrangement was then made with the Winnipeg and Hudson Bay Railway and Steamship Company, and ratified by the Legislature for the province to guarantee the interest at 4 per cent. per annum for twenty-five years on bonds of the road to the extent of \$4,500,000, to become payable on the completion of the road.

A very important measure was carried, consolidating the laws relating to municipal corporations. The bill was drafted by three commissioners appointed by order in Council in 1885. Special consideration is given to the judicial district boards. These boards, one for each of the three judicial districts into which the province is divided, were created primarily to collect and disburse the expenses in connection with the erection and maintenance of court-houses and jails, and the administration

of justice. Hitherto the boards have also had the responsibility of collecting arrears of taxes for local municipalities and towns, and of the sale of land for arrears of taxes. The act provides for the performance of these latter duties by the officers of the municipalities, and for the appointment of a provincial officer, to be called the Municipal Commissioner, to control the collection and disbursement of the expenses of the administration of justice. Taxation of personal property in local municipalities is abolished, and the right of municipalities to collect taxes is barred after five years from the time of their levy. A practice has extensively prevailed among land-owners of allowing their lands to go to sale for arrears of taxes, and then buying the lands in for less than the amount of the taxes. To stop this practice the municipalities are authorized to buy the lands unless the full amount of the taxes due is bid. The period of redemption of lands sold for arrears of taxes is reduced from two years to one year. Several places with very small populations are reported as having been incorporated as towns; incorporation having been sought by land-owners in order to enable them to dispose of their lands as town property. Some of these so-called towns are overburdened with debt, and some have neglected to elect councils or make provision for their liabilities. Provision is made in the act to prevent the incorporation of such places in future.

On a motion being made to express approval of Mr. Gladstone's Irish home-rule policy, the Legislative Assembly passed an amendment to the effect that "while some modification may be required in the form of government under which Ireland has been in the past and is now ruled, this House is not possessed of sufficient information in order to express any definite opinion on that important question; and further, that this Legislature has full confidence that the Imperial Parliament will enact such legislation as will be in the best interests of that portion of the empire, and remove the causes of discontent existing there."

MARYLAND. State Government.—The following were the State officers during the year: Governor, Henry Lloyd, Democrat; Secretary of State, Robert B. Milligan; Attorney-General, Charles B. Roberts; Comptroller, J. Frank Turner; Treasurer, John S. Gittings; Tax Commissioner, Levin Woolford; Insurance Commissioner, Jesse K. Hines; Commissioner of the Land-Office, J. Thomas Scharf; Commissioners of Labor Statistics, Thomas C. Weeks; Secretary of the Board of Education, M. A. Newell. Court of Appeals: Chief Judge, Richard H. Alvey; Associate Judges, L. T. H. Irving, John M. Robinson, George Yellott, Oliver Miller, John Ritchie, Frederick Stone, and William S. Bryan.

Legislative Session.—The Legislature met on the 6th of January, and adjourned on the 5th of April. Arthur P. Gorman, Democrat, was

chosen United States Senator. The Legislature elected acting-Governor Lloyd to fill out the remainder of the gubernatorial term. The following were among the important acts of the session:

- The Lane Constitutional Convention bill.
- The Peter tobacco-inspection bill.
- The bill authorizing the issue of bonds by Wicomico County; authorizing the appointment of two additional magistrates in Baltimore County; sanctioning sundry sales, conveyances, and deeds to sundry religious sects, orders, and denominations.
- Relating to the Sheriff of Baltimore County.
- The bill to prohibit opium-joints, and the bill to prohibit the employment of females in concert-saloons.
- Repealing and re-enacting the Anne Arundel tax-collection law.
- Re-enacting the Queen Anne County wild-fowl law.
- Incorporating the Pocomoke Land Improvement Company.
- Relating to leaves.
- Providing for printing Labor-Statistician Weeks's report.
- Re-enacting the testamentary law.
- Relating to the attendance and pay of witnesses in court.
- For the better protection of fish in Talbot County.
- Authorizing the sale of the Hall's Springs Railway Company's property in Baltimore.
- Re-enacting the law relating to appeals.
- To enforce the law regulating the hours of labor in the mines of Garrett and Allegany Counties.
- Authorizing the commitment of destitute girls to St. Mary's Orphanage School.
- To encourage the destruction of crows, hawks, and owls in Wicomico and Worcester.
- Repealing the Worcester County wild-fowl law.
- Re-enacting the Worcester County oyster law.
- To refund overpaid taxes to the Delaware, Maryland, and Virginia Railroad Company.
- Requiring the coal companies of Allegany and Garrett Counties to pay their employés semi-monthly.
- To provide for the enlargement of the State-House.
- To punish the use of deleterious matter in cakes and candies.
- To amend the testamentary law relating to Orphans's Court.
- To regulate shooting of wild-fowl in Chester river, Queen Anne County.
- Amending the law relating to the shooting of teal-duck.
- To amend the act authorizing the Governor to appoint general measurers of oysters.
- To punish the manufacturers, publishers, and distribution of indecent and immoral prints and other documents.
- Amending the law relating to landlord and tenant.
- To authorize the Mayor, and City Council of Baltimore to make provision to pension employés of the fire department.
- To refund certain debts of the State to a lower rate of interest.
- To amend the law relating to partridge-shooting in Caroline County.
- Providing for scientific temperance instruction in the public schools as amended, without the compulsory feature.
- Relating to the summoning, selection, and drawing of jurors.
- Regulating the sale of fish in Baltimore.
- Forbidding the sale of fish under a certain size.
- The oleomargarine act.
- For a tax commission to exempt certain portions of the Chesapeake Bay from the provisions of the game laws.
- Incorporating the Maryland Naval and Military Academy at Oxford.
- Appropriating money to pay for repairs to State-House and Executive Mansion.
- To incorporate the Maryland Railroad Equipment Company.
- Autorizing the Mayor and City Council of Baltimore to issue bonds for establishing a public park.
- To add new sections to Article XVI Code of General Laws.
- Relating to chancery.
- Relating to process.
- The Crescent Club primary election law.
- Requiring affidavits for marriage licenses.
- To incorporate the Real Estate Exchange of the city of Baltimore.
- Providing for changing a person's name.
- To amend the law relating to revenue and taxes.
- Relating to conveying.
- Relating to infants in chancery.
- The Annapolis local-option law for submisson on April 28.
- The general lunacy commission bill.
- General law relating to partition of lands.
- To amend the *habeas corpus* law.
- To authorize the City Council to regulate tenement-houses, lodging-houses, and cellars in the city of Baltimore.
- Relating to inheritance.
- To re-enact the law relating to carrying concealed, dangerous, and deadly weapons.
- To amend the law relating to the punishment of frauds upon gas companies.
- To amend the law relating to exemption of property from execution.
- To prevent the sale of cigars, cigarettes, and tobacco to minors.
- Appropriating \$2,000 per annum to Baltimore Manual Labor School.
- To prevent the sale of gift-enterprise packages.
- The one-dollar marriage license law.
- The general oyster law.
- Regulating practice of dental surgery, by allowing graduates of reputable colleges out of the State to practice without examination.
- To fix the standard of measurement of shucked oysters in the State.
- To amend the mechanics' lien law.
- For the better protection of persons and property in Baltimore County.
- To amend the charter of Frederick City.
- Relating to the office of register of wills for Frederick County.
- Relating to fishing in the upper Potomac.
- For a recodification of the general and local laws.
- To prevent the sale of liquors to minors in Allegany County.
- To protect lives and property of persons at railroad-crossings.
- The two general appropriation bills for 1887 and 1888.
- Commercial fertilizers bill.
- Senator Jackson's bill to propagate oysters.
- To amend the law relating to releases of bills of sale and transfers.
- To prevent the pollution of streams, wells, springs, and other sources of water-supply used for drinking and domestic purposes in this State.
- For the suppression of nuisances and the better protection of the health of the inhabitants of this State.
- To incorporate the American College of the Roman Catholic Church of the United States.
- To legalize the commitment of destitute and suffering children to reformatories and other institutions.
- To enlarge the powers of railroad companies by authorizing them to cross other railroads, and regulating the mode of condemning the easements of such crossings.
- The convention bill provides that at the general election, on the first Tuesday after the first Monday in November, 1887, the people shall vote on the question of a call of a convention for altering the Constitution or framing a new one.

Political.—On November 2 the Republicans carried the Sixth Congressional District, and the Democrats the other five. No State officers were chosen.

Finances.—The receipts into the treasury from all sources during the year ending Sept. 30, 1886, amounted to \$1,994,278.77, which, added to the balance in the treasury on Sept. 30, 1885, makes the total amount in the treasury during the year \$2,741,686.10. The receipts for the year were a fraction less than they were for 1884 and 1885, but they are about what have been the average for the past nine years.

The disbursements during the year amounted to \$2,125,109.76. In this sum is included the expenses of the Legislature, the pay of its members and officers, amounting to the sum of \$110,698.65; public printing and publishing the laws, \$3,786.78; the refunding of moneys on account of licenses issued to carry oysters over the waters of the State, and licenses abridged by the enactment of a new oyster law in 1884, \$27,493.46, and special appropriations to the amount of \$38,310.76, amounting in the aggregate to the sum of \$207,289.65. There is also included in the disbursements the sum of \$276,877.10, expended in the purchase of stock and the redemption of balance of the Old Defense Loan, and after deducting these several sums from the total disbursements, there remains the sum of \$1,640,943.01 as the net ordinary expenses of the State government for the fiscal year 1886. This sum is more than \$25,000 less than the ordinary expenses of the State for the last legislative year (1884). The expenses of the Legislature of 1886 were somewhat greater than they were for the session of 1884, which increase was in part occasioned by contested election cases, there being one in each house.

The probable receipts for the fiscal year 1887 are \$1,979,548.34, which, if realized and added to the balance in the treasury on the 30th day of September, 1886, \$616,576.34, will make the total amount in the treasury during the fiscal year 1887 to be \$2,596,124.68. The estimated disbursements for the same period are \$1,617,701.40, which, deducted from the estimated receipts, will leave a balance of \$978,823.28. This sum will be ample to maintain the sinking-funds in accordance with the laws creating the various State loans, and still leave a sufficient balance to insure the treasury officers against embarrassment in providing the means necessary for an efficient administration of the public affairs of the State.

The receipts on account of the free-school fund during the fiscal year were \$69,340.86, which, added to the balance, \$7,220.49, standing to the credit of this fund on Sept. 30, 1885, make the aggregate amount of said fund during the year to be \$76,561.33. The disbursements of this fund during the fiscal year amount to the sum of \$68,682.52, leaving a balance of \$7,878.81 to the credit of this fund at the end of the fiscal year just closed. The receipts

and disbursements on this account are about the same they were for 1884 and 1885.

The sinking-fund investments amount to the sum of \$1,752,290.18. There was received during the fiscal year, on account of the tax providing for the sinking-funds of the various loans of the State, and the increment arising from investments heretofore made on these accounts, the sum of \$351,728.37, which, added to the sum of \$179.49 standing to the credit of the funds at the close of the fiscal year 1885, makes the sum of \$351,907.86, and that sum has been invested in the bonds of the State and of the city of Baltimore, and carried to the credit of the various sinking-fund accounts.

The Comptroller called in on October 1 the bonds of the State issued on account of the Maryland Hospital, and thus secured the balance of said loan not before in the sinking-funds, amounting to \$99,000, and carried said bonds to the credit of the sinking-fund account, making a total sinking-fund, at the close of 1886, of \$1,850,290.18.

The dividends from the various stocks held by the State amount to \$208,934.54.

The receipts during the year ending Sept. 30, 1886, on account of the oyster fund were \$51,057.74, while the disbursements on account of the service, and for money refunded for licenses issued to carry oysters over the waters of the State, and for licenses cut short by the enactment of a new oyster law, amounted to the sum of \$106,600.62. The pay of officers and crews in 1885 amounted to \$45,748.46, and for the year 1886 it amounted to \$54,362.95, a difference of \$8,614.49.

The debt of the State is	\$10,960,535 56
As an offset to this debt the State holds stock of the Baltimore and Ohio Railroad Company to the amount of	1,518,615 70
Stock in Farmers' National Bank of Annapolis, amounting to	46,470 00
Stock of Annapolis Water Company	80,000 00
Bonds of Northern Central Railway	1,500,000 00
Bonds of the State, city of Baltimore, and other good securities in sinking-funds	1,752,290 18
Total	\$4,847,375 88
To which add Maryland Hospital bonds called on October 1, amounting to	99,000 00

And making, to date, an offset of

\$4,946,375 88

All of these investments pay promptly an annual interest or dividend, and outside of the sinking-funds they all pay 6 or 7 per cent., and \$550,000 of the stocks yield annually dividends amounting to 10 per cent. During the year the treasury officers exchanged the matured bonds of the State to the amount of \$628,000, bearing interest at the rate of 6 per cent. per annum, for a fourteen-year bond redeemable at the pleasure of the State after ten years, bearing interest at the rate of 3 per cent. per annum. During the coming year bonds of the State to the amount of over \$1,200,000 will fall due, bearing interest at the rate of 3 per cent. per annum, which it is believed will be readily exchanged at a rate of interest not exceeding 3 per cent. per annum. When this shall have been accomplished, there will be an

annual saving to the treasury in interest of over \$54,000.

The State had, on Sept. 30, 1886, productive capital and credits to the amount of \$5,302,285.90, and unproductive investments, from which it is not improbable something may be realized, to the amount of \$28,126,034.06, of which \$25,371,966.53 is a claim against the Chesapeake and Ohio Canal, \$7,000,000 being principal and the rest interest.

The total assessable property in the State is \$476,829.61, which, at the present tax rate, will realize \$476,829.61 for public schools, and \$417,225.91 for interest on a portion of the State debt and for the maintenance of the sinking-funds.

The gross receipts of the five tobacco-warehouses, for the fiscal year 1886, amount to \$73,850.67, while the disbursements by the inspectors for the same period amount to \$69,957.39, leaving as the net earnings of the warehouses for the year the sum of \$3,893.28. There was received during the year balances due for the fiscal year 1885, amounting to the sum of \$727.24, which, added to the net earnings, make the aggregate net receipts for the fiscal year 1886 amount to \$4,620.52. The disbursements do not include the inspectors' salaries, which are paid under the law out of the State treasury, amounting to the sum of \$9,000. The system is, therefore, a tax upon the treasury for the year to the amount of \$4,379.48.

The receipts on account of public-school taxes for the fiscal year 1886 amount to the sum of \$517,702.93, being \$11,291.09 less than for the year 1885, while the disbursements for the fiscal year 1886 amount to the sum of \$486,387.36, being \$22,553.56 less than for the year 1885. The receipts from clerks of courts and registers of wills, for the fiscal year 1886, were \$488,259.47, being \$24,098.36 greater than for the fiscal year 1885. This increase of receipts is mainly accounted for by the increase from excess of fees of office, amounting to the sum of \$21,550.08 in 1886 against \$13,185.36 in 1885.

MASSACHUSETTS. State Government.—The following were the State officers during the year: Governor, George D. Robinson, Republican; Lieutenant-Governor, Oliver Ames; Secretary of State, Henry B. Peirce; Treasurer, Alanson W. Beard; Auditor, Charles R. Ladd; Attorney-General, Edgar J. Sherman. Supreme Court: Chief-Justice, Marcus Morton; Associate Justices, Walbridge A. Field, Charles Devens, William Allen, Charles Allen, Oliver W. Holmes, Jr., and William S. Gardner.

Legislative Session.—The Legislature met on January 6, and adjourned on June 30, after a session of 176 days, a period technically exceeded since 1832 by but one, that of 1883, the famous Butler session. In reality its length was equaled by that of 1874.

There was little radical legislation affecting Boston. The principal acts were for the es-

tablishment of truant schools; relating to the drainage of East Boston; to authorize the purchase by the city of the property of the Jamaica Pond Aqueduct Company; the change of time for the organization of the school committee; extending the time for the completion of the Charles river embankment, and enlarging the powers of the company that is to do the work; authorizing the \$2,500,000 park loan and the extension of the new Court-House to include accommodations for the Registries of Deeds and Probate.

Bills were passed, affecting the State at large, to allow the election of women as overseers of the poor; to permit bakers to keep open for business during certain hours on Sunday; to establish a new tax apportionment; to refer to the Board of Education the question of a half-mill educational fund; the first stage for a constitutional amendment to abolish the poll-tax as a prerequisite for voting; the raising of the age of consent, and the increase of the penalty for rape; the establishment of the office of Auditor in towns; appointment of Arbor-Day; revision and codification of the insurance laws; to prevent forest-fires; and a new schedule for the collection of manufacturing statistics.

The principal law affecting the judicial system is that which increases by one the number of Justices of the Superior Court. The usual attempts to enlarge the Supreme Court, and to take away from that court jurisdiction over divorce matters, failed. A new district court was established in Western Hampden, and the East Boston Municipal Court was abolished and the East Boston District Court established in its stead. An order was passed for a special committee to sit during the recess and consider the changes, if any, needed in the lower judicial system of the State—i. e., courts below the Superior and Probate Courts.

The railroad legislation of the session is made up largely of special acts. These include the ratification of the Boston and Lowell leases and purchases, and of the lease of the Worcester, Nashua, and Rochester by the Boston and Maine; the authorization of the purchase by the Naumkeag of the Salem Street Railway and the consolidation of the Connecticut River and Ashuelot Railroad Companies, and the New Bedford, Vineyard, and Nantucket, and Nantucket and Cape Cod Steamboat Companies, and the incorporation of the Konkapot Valley Railroad. The general bills were those to protect employés by the filling or blocking of frogs, switches, and guard-rails; to allow railroad companies to join railroad relief societies; to authorize action of tort for loss of life by negligence against street as against steam railway companies; to authorize the consolidation of the Boston street railway companies, and to allow all street companies to use the cable system under certain conditions. A union passenger station for the Boston and Maine and Eastern Railroads was authorized.

There was the usual large number of demands for new or increased water-supplies, and among the companies incorporated are the Braintree, Stoughton, Saugus, Hassanamisco, Cohasset, Plainville, Turner's Falls; and new supplies or enlargements granted to Abington, Brocton, Canton, Chicopee, Cottage City, Everett, Grafton, Hingham, Hudson, Malden, Marblehead, Northampton, Norwood, Quincy, Fall River, Rockland, Whitman, Wakefield, and Ware.

The session was exceptional for labor legislation. The General Court passed an arbitration bill, one for weekly payments, another to limit the hours of labor of women and minors in manufacturing establishments, acts to better protect the safety of employés by establishing communication to insure the speedy stopping of the machinery, and to require reports of accidents of a certain degree of seriousness, and to empower corporations to issue special stock to be held by employés only.

Of matters relating to the town divisions, but four of the large numbers of petitions met with success. The most notable instance was the incorporation of the town of Hopedale. A large part, as far as concerns population, of the town of Salisbury was annexed to Amesbury, and a very small portion of Leyden authorized to be annexed to Bernardston, if the inhabitants shall so vote. The town of South Abington was allowed to change its name, and that of Whitman selected from the four from which choice was allowed.

A question of interest was the Field claim on the New York and New England bond sale, which resulted adversely for Mr. Field and his associates.

The telegraph and telephone companies were the objects of many attempts at legislation, particularly the telephone companies. The American Bell Company has been limited in its future holdings of stock in sub-companies, which, with a bill to put telephone companies under the general taxation laws, is practically the only resulting legislation.

The liquor laws were not materially changed, despite several attempts so to do. An act was passed to regulate the size and description of ballots used in voting on the liquor question.

The sale or gift of tobacco in any form to persons under 16 years of age was forbidden.

An act was passed to carry into effect the constitutional amendment allowing precinct voting in towns, and another to provide for a recount of votes cast in towns for national, State, district, or county officers.

The Health Department has been separated from the State Board of Health, Lunacy, and Charity, and a separate Board of Health established.

An important matter of the session was the drainage question, but, except passing measures to require the city of Worcester to adopt some system to prevent its pollution of Blackstone river, and to give the protection of the

purity of inland waters to the charge of the Board of Health, the general subject was referred to the next General Court.

One new savings-bank was incorporated, the Shawnee, of Sandwich. The amount to be deposited by any such bank in any one national bank or trust company was limited. Treasurers' bonds must be renewed as often as once in five years, and the time was extended during which the savings-banks may hold real estate taken under foreclosure of mortgage.

Evening high-schools in cities of 50,000 or more inhabitants were authorized, and the petitioners for a teachers' tenure-of-office bill were successful.

The Winthrop Elevated Electric road was incorporated.

The city of Holyoke was exempted from the operations of the municipal indebtedness and rate of taxation acts of 1885.

The biennial sessions amendment to the Constitution failed to receive the indorsement of the House.

The Legislature redivided the State into councilor and senatorial districts, and made a new apportionment of the representatives by counties. As a consequence of this work it was discovered that all new divisions of cities into wards, made between the census and the redistributing, were illegal for redistricting purposes, and the ward lines in all cities were re-established as of May 1, 1885. This was brought about by the attempt to set aside the Boston division, made by the City Council in 1885.

Finances.—The following is a summary of the financial affairs of the Commonwealth, as exhibited in the statements of the several departments:

	DEBT.
Funded debt Jan. 1, 1886.....	\$31,429,680 90
It has been reduced during the year by the following payments from the sinking-funds:	
Coast-defense loan bonds due July 1, 1883.....	\$2,000
Bounty loan bond due July 1, 1883....	1,000
	8,000 00
Funded debt Jan. 1, 1887.....	\$31,429,680 90

	SINKING-FUNDS.
Amount of sinking-funds Jan. 1, 1886.....	\$18,182,672 44
Reduced by payment of coast-defense and bounty loan bonds.....	8,000 00

Amount of sinking-funds Jan. 1, 1887.....	\$18,179,672 44
Reduced by payment of coast-defense and bounty loan bonds.....	18,964,412 62

Increase.....	\$784,740 18
Actual expenses, 1885.....	4,915,308 48
Actual expenses, 1886, so far as can be ascertained.....	5,017,647 71

	ESTIMATES FOR 1887.
Payments for all purposes.....	\$5,068,726 87
Receipts, including cash on hand, but exclusive of direct State tax.....	3,951,081 31
Deficit.....	\$1,117,645 56

The Legislatures of recent years have neglected to raise, by the annual direct tax levy, a sum sufficient for the needs of the government, the result of which has been a

deficit increasing year by year, until it has now reached serious proportions. To meet the deficit, and the probable necessities of the coming year, the sum of \$2,000,000 will be needed in addition to the ordinary revenue, and the Governor recommends that that sum be raised by direct taxation.

Savings-Banks.—The total of deposits in the savings-banks at the close of business Oct. 30, 1886, was \$291,197,900.96, an increase for the year of \$16,199,488.08, which is greater than for any year since 1875. The number of depositors was 906,039, an increase of 57,250, which is the largest increase for any year since 1872. There are now 172 savings-banks doing business in the Commonwealth, one more than the year previous. The savings-banks of the State find it more and more difficult with each succeeding year to invest their deposits safely and profitably. United States bonds pay their holders little more than $2\frac{1}{2}$ per cent. net income, and they are being rapidly called in. Comparatively few city and town bonds are being issued. All that remain, then, for the investment of the bulk of the deposits are mortgages on real estate and loans on personal security. While real-estate mortgages are desirable, experience has shown that it is not safe to have too large a proportion of the deposits in investments that can not be readily turned into cash at short notice, when needed. The present statutes provide that not over one third of the deposits shall be invested in personal securities. "Loans on personal securities," says the Governor, "consisting of the notes of a principal with two or more sureties, often strengthened with satisfactory collateral, or of the notes of strong corporations, with the guarantee of responsible parties, are most desirable investments, especially when the notes contain a provision that any part of the loan needed to pay depositors may be called before maturity. In case of a run on the bank in time of panic, these loans are practically on demand, and they are due from persons able to respond promptly under almost any circumstances. Believing that the interest of the depositors will be promoted by allowing a larger investment in such desirable loans, I recommend that the limitation of loans upon personal securities be increased from $33\frac{1}{3}$ to 40 per cent. of the total deposits."

Co-operative Banks.—The interest in the establishment of co-operative banks is increasing. During the year ten have been incorporated, making forty now in operation. "The object," says the Governor, "for which they were primarily established—to assist mechanics and other persons of moderate means in securing homesteads by the use of their monthly savings—recommends them to the fostering care of the Legislature, and also requires that their stability should be maintained by such conservative legislation as their development calls for."

Education.—By the law of 1870, power is

granted the towns to unite into districts for the purpose of securing such supervision as their schools may require. Four districts have been formed under this law, with good results.

The new building for the State Normal Art School is nearly completed. The Governor suggests that the Legislature consider whether the success of this experiment in higher education does not warrant the extension of the State normal system to music. "The promotion of our manufacturing interests," he says, "and the welfare of working men and women appear to me to require the early establishment of high-schools of the mechanic arts and of industrial design, in our cities and larger towns, and the incorporation of manual training among the studies and exercises of grammar-schools, in order to give handicraft, familiarity with the use of tools, and a knowledge of mechanical principles to all the youth of the State. It should be borne in mind that when the existing studies and exercises were introduced into the schools of the Commonwealth, by far the greater part of our people lived in isolated houses or in small villages, where every boy had occasion to work, and to learn the use of tools. At the present time, with more than three fourths of our population gathered into cities and large towns, with little or no opportunity for useful work in the intervals of study, a generation is growing up in Massachusetts without instruction or training of eye and hand. The decay of the apprentice system has coincided with this change in depriving our youth of the means of acquiring skill in the use of tools and knowledge of mechanical principles, and in driving them more and more into the already overcrowded ranks of those who follow sedentary occupations; while an increasing severity of competition is making it constantly more difficult for the Commonwealth to maintain the advanced position which, from the first, it has held among the manufacturing States of the Union."

Sunday Laws.—On this subject the Governor, in his message to the Legislature of 1887, says: "The laws concerning the observance of the Lord's day are, in their present form, of unequal if not unjust operation, and by partial or irregular enforcement are liable to become an annoyance to the people and a reproach to the State. The whole body of the Sunday laws should be thoroughly and carefully revised, and this should be done without delay. I believe that it is possible to frame such legislation as will permit the doing of acts which, in the present state of society, are generally approved as practically necessary on all days alike, and will remove from our law the reproach of being an aid to fraud and an encouragement to the violation of just obligations; and I have no doubt that this can be done with due regard to the quiet and sanctity of the Sabbath, and without offending the feelings of any class of our citizens."

Militia.—The militia is in good condition and increasing in efficiency. The attendance of officers and men on occasions of duty in 1886 was the largest for many years. The appropriation for the military department for the year 1886 was \$168,200, of which \$154,241.06 was expended, \$147,190.95 being properly chargeable to the militia as pay of troops, armory rents, supplies, and salaries of the Adjutant-General and clerks, the balance having been expended on war and naval records, etc.

The Courts.—The Justices of the Supreme Judicial Court are much overworked, a natural result of their constantly increasing duties, and, in many of the counties of the Commonwealth, the business of the Superior Court, both civil and criminal, is greater than can be dispatched with its present facilities.

The Superior Court was established in 1859, with ten justices. Since that time its jurisdiction has been materially enlarged, and the population of the Commonwealth has increased about eight hundred thousand, while in wealth and valuation there has been an increase of about one thousand million dollars; yet during this period of nearly twenty-eight years there have been added but two to the number of its justices, and these twelve are industriously striving to accomplish the impossible task of clearing its necessarily overcrowded dockets.

"It does not seem desirable," says the Governor, "to increase the number of Justices of the Supreme Judicial Court; but as a partial relief for that court I would renew the recommendation of two of my predecessors, that jurisdiction of divorce causes be transferred from the Supreme Judicial to the Superior Court. I also recommend legislation to provide for an additional sitting of the Supreme Judicial Court for the decision of questions of law. The increase of the business of the Superior Court may be met, without any resulting disadvantage, by such addition to the number of its judges as seems to be demanded."

Civil Service.—The annual report of the Civil-Service Commissioners says that on December 1 there were 5,956 persons in the classified service, divided as follows: Clerks in service of the State and cities, 523; the police, 1,691; prison and watch service, 223; fire service, 681; draw-tenders and foremen of laborers, 145; in labor service of Boston, 2,693. The annual compensation of those in this classified service is \$4,375,000, and the cost of the administration of the civil-service act is less than one quarter of one per cent. of this compensation. There were 76 per cent. of those examined for the first division, which includes all but the labor service of Boston, who passed, and 42 per cent. of these who passed received appointments. The average age of all examined was about thirty-three years and six months. Of those examined 926 were men and 109 were women; of those appointed 338 were men and 17 were women.

For the labor service of Boston, 983 were registered; 866 laborers were certified, and 404 were employed. The commissioners say: "The appointing officers of the Commonwealth and cities having become familiar with the system established by the civil-service act, have generally recognized its utility, and it affords them relief from personal importunity for office. The public service has been benefited by securing the employment of tested and proved fitness, by taking partisanship and personal favoritism out of our public offices, by relieving the superior and appointing officers of the pressure of solicitation for office, and by giving incumbents of office a more secure tenure."

The labor service classified by the rules includes Boston only. The system established by the rules and regulations in 1885 has been followed during the past year without material change, and with good results.

Great care has been taken to limit the questions put to applicants to those subjects which prove the competency for the particular position sought, and the commissioners describe in detail how this care is exercised. In all examinations for promotion, the greatest weight is given to the actual work in office of the person examined. The evening-schools have been of great assistance in enabling candidates to make up deficiencies shown by a first examination, and it would be difficult to overestimate their value to those who earnestly wish to obtain an education.

There have been eight special competitive examinations for original appointments, 29 non-competitive for original appointments. Although request is frequently made to the commissioners for special, or non-competitive examinations, they have been refused, unless the office required peculiar knowledge and qualifications, which could not be tested by any general examination, or unless there was no one in the general list qualified for or willing to take the position. In those cases the rules allow the commissioners to order a special examination. The experience of another year has confirmed the opinion of the commissioners that under the present statute preference given to honorably discharged soldiers and sailors secures to them every right that it would be possible to enforce in appointment to the public service. In the labor service, 24 per cent. of those registered were veterans, of whom nearly 37 per cent. were certified against 42½ per cent. of civilians. In the limited examinations 110 veterans took part, of whom 89, or 81 per cent., passed, and about 45 per cent. were appointed to office. The experience of the year shows again that a greater percentage of veterans passed the examinations and more than held their own in competition with civilians.

Hoosac Tunnel.—After six months of investigation and consideration, the State property in the Hoosac Tunnel and Troy and Greenfield

Railroad was, at the beginning of 1887, disposed of by the Governor and Council to the Fitchburg Railroad Company, by authority of chapter 297, acts of 1885. During the early part of the negotiations the Lowell Railroad Company began to compete for the consolidation, and asked for a minimum price from the Governor and Council. The reply was that the State officials would not entertain any offer not exceeding \$5,000,000 in present market value. The President of the Lowell road, after a meeting of the Directors, made answer that at that price he did not desire to bid at all, and therefore he withdrew that road and the Central Massachusetts from all competition. This left the Fitchburg Railroad the only bidder, and the result of its negotiations is given below. The basis of the consolidation is that the State is to receive \$5,000,000 of fifty-year bonds, bearing interest at 3 per cent. during the first five years, $3\frac{1}{2}$ per cent. during the next five years, and 4 per cent. during the remainder of its term. The State is also to receive \$5,000,000 in common stock of the Fitchburg road. The road is to increase its present issue of 52,866 shares of stock one third, or 17,622 shares, making a total of 70,488 shares, or \$7,048,800, all of which is to be preferred stock, and the extra one third is to be divided among the present stockholders, pro rata according to their holdings. In return for this increase of one third, the dividends on preferred stock to be paid after the interest on the bonds, and to be 4 per cent., and any surplus of earnings is to be divided pro rata between the State on its five millions of common stock and the road on its seven millions of preferred stock, i. e., the State is to receive five twelfths and the road seven twelfths of such surplus. The bonds are worth par; but the value of the common stock that the State is to receive is problematical.

Political.—The Republican State Convention met in Boston on September 29, and nominated Oliver Ames for Governor, and John Q. A. Brackett for Lieutenant-Governor. The rest of the State officers were renominated. The following are the principal points of the platform adopted:

Recognizing in intemperance the destroyer of manhood, a means of corruption in politics, and the most fruitful source of pauperism and crime, we imperatively affirm that both patriotism and philanthropy demand the most strict enforcement of the laws enacted to suppress this enormous evil. A practical difficulty in dealing with cases for violation of the liquor law is the great number of such actions which come to the Superior Court on appeal from the inferior courts. So numerous are they in some portions of the Commonwealth that it is impossible to try them all with the present facilities, and thus the constitutional right of appeal, which can not be abridged, too often secures immunity to law-breakers. This should be remedied, and we urge the Legislature to provide additional and frequent sessions of the Superior Court wherever needful, and such other facilities as will insure a speedy and thorough trial of all these cases. We pledge ourselves to support, as a candidate for office no man who is afraid or unwilling to do his

whole duty in enforcing the laws; and to favor at all times such further legislation as may be necessary to render the existing laws more effective.

Believing, also, that whenever a great public question demands settlement an opportunity should be given to the people to express their opinion thereupon, we favor the submission to the people of an amendment to our Constitution prohibiting the manufacture and sale of alcoholic liquor to be used as a beverage.

We give to the civil-service acts passed by a Republican Congress and the Republican Legislature of this Commonwealth our hearty approval and support. We will oppose all open or covert attacks upon them, and encourage no action which tends to impair their efficiency. Fitness, not political influence, should determine appointments to office; removals should be made for cause alone, and incumbents should be freed from enforced partisan duty and assessment. We favor the extension of these principles to all business offices in the State and nation.

Holding it to be a fundamental principle that the best government is that which encourages and secures the greatest liberty of individual action consistent with the rights of others, the Republican party looks with disfavor upon legislation which unnecessarily interferes with such liberty. It does not hesitate, however, to correct the evils growing out of inequality of condition, so far as they may be wisely changed by legislation, and its record in behalf of the interests of labor has no parallel. During the present year our Republican Legislature has enacted laws requiring the weekly payment of wages by corporations, reports of accidents in factories, the posting of additional notices of the hours of labor therein; that means of communication shall be provided with the engineers' rooms and other rooms in manufacturing establishments where steam is used as a motive power, and the act establishing a State Board of Arbitration. The solid vote of the Democratic members of the Senate against the bill relating to the liability of employers for injuries sustained by employés in their service, which prevented its passage, was contrary to Democratic professions and an injustice to workmen. Justice and fairness demand a calm, dispassionate, non-partisan examination of the principle of employers' liability, free from selfishness and demagogism, and the enactment of a law which, while carefully guarding the rights of employers, shall afford adequate protection to employés.

All men have the right to make lawful contracts, including those of their own labor or that of others, without interference or molestation, and we condemn as unjust and subversive both of private right and public interest all attempts, by coercion or intimidation, to interfere with such right.

We demand of the national Administration prompt, persistent, and determined action in the settlement of the dispute between this country and Great Britain, to the end that our fishermen may no longer be unjustly harassed and despoiled of their property and deprived of their occupation.

We firmly maintain the principle of protection to American labor and American industries. While anxious that inequalities in the tariff shall be corrected and the duties on imports so adjusted as to conform to the changes in the needs of the business of the country, and to provide a revenue equal to the just demands of the Government, we oppose all horizontal reductions and such mischievous attempts at intermeddling with the tariff as the so-called "Morrison bill."

We condemn the recent precipitate and peremptory treatment by our national State Department of our sister Republic of Mexico, which caused the estrangement of a neighboring power, with whom considerations both of friendship and self-interest should have impelled us to cultivate more intimate relations.

We condemn the Democratic House of Representatives in Congress for its neglect of our commercial in-

terests, for its failure to provide sea-coast defenses, to enact a national bankruptcy law, to repeal the law making compulsory the coinage of the depreciated silver dollars, for its unwillingness to pass wise and salutary laws, and for its utter incapacity to deal with public questions.

A sound currency, based upon specie, in conformity to the monetary standard of the world, is of the most vital importance to all the interests of the country. The continued coinage of the silver dollar at the present ratio is a constant menace to the stability of our finances. We again demand the repeal of the law which requires the further coinage of this debased money.

The Democratic State Convention met in Worcester on September 30, and nominated the following ticket: For Governor, John F. Andrew (son of the war Governor, John A. Andrew); Lieutenant-Governor, Frank K. Foster; Secretary of State, John R. Thayer; Treasurer, Lewis Warner; Auditor, William F. Cook; Attorney-General, J. W. Corcoran.

The Prohibitionists had a ticket in the field, headed by Thomas J. Lothrop. On November 2 the Republican ticket was elected. The following was the vote for Governor: Republican, 123,846; Democratic, 112,883; Prohibition, 8,251; scattering, 289. Democrats were elected to Congress in the Third, Fourth, Ninth, and Tenth Districts, and Republicans in the other eight. Seven Republican and one Democratic members of the Executive Council were chosen. The Legislature consists of 25 Republicans and 15 Democrats in the Senate, and 157 Republicans and 82 Democrats in the House. The municipal election in Boston on December 14 resulted in the re-election of Hugh O'Brien, Democrat, for mayor. The vote was as follows: Democratic, 23,387; Republican, 18,719; Labor, 3,564. There were 20,223 votes cast for license and 16,786 against.

The Board of Aldermen will stand 7 Democrats and 5 Republicans. The Council will stand 32 Republicans, 35 Democrats, and 5 Independent Democrats.

Worcester, Lynn, Salem, Chelsea, Taunton, Holyoke, and Lawrence voted for license. Fall River, Haverhill, Malden, Newton, New Bedford, Gloucester, Fitchburg, Springfield, Somerville, Waltham, Northampton, Brockton, and Cambridge voted against license, though most of them in 1885 favored license.

Gloucester Fisheries.—The year was unprofitable and disastrous to the fishermen from this port. The loss exceeded the average. The figures show a total loss of 26 vessels, with a tonnage of 175,126, valued at \$152,300, and insured for \$119,231. The number of lives lost is 137. The Christmas and New-Year gales proved calamitous. The losses from December 1 to March comprised 12 vessels, three with crews of 42 men, while 24 other men lost their lives while visiting trawls or were washed overboard. The total loss was 66 lives and nearly \$100,000 worth of property in these gales. Fourteen women are left widows and thirty-five children fatherless.

Cranberries.—The Superintendent of the Cape

Division of the Old Colony Railroad reports that the total amount of cranberries shipped over that division during the autumn of 1886 was: In barrels and boxes, 81,506; estimated yet to go, 2,000; total in barrels, 83,506. In 1885: Shipped in barrels and boxes, 61,457; unshipped, by estimate, 4,608; total barrels, 66,065.

MENNOMITES. The followers of Simon Menno—Mennonites, or Anabaptists—date from the middle of the sixteenth century, being Germans, mostly living in western Prussia, whence they were driven by persecution a century ago to take refuge in southern Russia. As their religion precluded violence, and consequently warfare, the Russian Government, until 1871, protected them and gave them freedom from conscription. In 1871, this privilege being taken from them, they were given permission to leave the country, when large numbers of them settled in the United States and Canada. In 1873 there were supposed to be about 60,000 in the two countries, of which number seven eighths were in the United States.

As the Mennonites were known to be industrious, frugal, and orderly, they were deemed desirable immigrants, and efforts were made to obtain them as settlers, so that their number largely increased, until there are now as many as 175,000 in the United States, and 25,000 in the Dominion. In this country they are widely scattered, but most of them are in Pennsylvania, where they have extensive and populous settlements, and in Minnesota, Kansas, and Nebraska. A few emigrated to Brazil, but these suffered great privations, sickness, and death, until the small remnant of their number were aided by the British consular authorities in that country to return to England, and were afterward permitted to take up again their residence in Russia.

About 1874 the Government of Canada sent a commissioner to the Mennonites in Russia, to confer with them in regard to emigrating to Manitoba. The idea was received favorably, and, in their turn, they sent agents to that country, who, on their return, made a favorable report. The Canadian Government loaned the Russian Mennonites \$80,000, at 6 per cent. interest, payable in eight years, the payment being guaranteed by the Mennonites living in Ontario. In 1875 they began to migrate to Manitoba, where they took up land on reservations allotted to them near the southern boundary of the province, to the east and west of the Red river, and along the line of the Canada Pacific Railroad. They now number in these settlements about 8,000 or 9,000.

The Mennonites still speak German, and are Protestants, the peculiar points of their religious faith consisting in their rejection of infant baptism, and their refusal to take an oath in any form, or to bear arms.

In Manitoba they have built themselves neat and comfortable cottages of sun-dried brick (adobe), and, wood being scarce, they use for

fuel pressed straw, which they burn in clay-built stoves, so placed that each of three sides heats a room, and they are able to keep up a comfortable temperature even in the frigid winters of that extreme climate. While industrious and excellent farmers, they are miserly, and will not purchase anything that they can manufacture. They make their own furniture, and are very expert mechanics. The Marquis of Lorne said of them, after paying a visit to the Manitoba villages: "Where the land on which their communities settled in the valley of the Red river needed draining, they, with true German energy and thoughtfulness and Russian perseverance, set about the work; and nowhere will you see better-cared-for colonies, though on a humble scale, than among the Mennonites of Manitoba. They form by far the most satisfactory instance that I am acquainted with of an aggregation in one place of men, women, and children, belonging to a foreign race."

The Mennonites are temperate, though they like luxuries, such as liquor and tobacco, when they can be obtained free of cost, their niggardly spirit being a principal element of their character. They can all read and write, but never look at a newspaper, or read any book except school-books and the Bible. They preserve their German speech, and are generally suspicious of strangers. The interiors of their houses are exceptionally comfortable, although the floor is generally made of hard-pressed earth, but the cleanliness about walls, floor, and furniture proclaims the presence of thrifty and industrious housewives. In the corners of each living-room may be seen on one side a cupboard garnished with china, and on the other an array of shelves for various uses. The roads that they have made from village to village, and their entire system of rural economy, are highly praised by all Canadian officials and others who have visited them. They are a religious and God-fearing people, having their own system of justice, and this is so well applied that they hardly know what crime is.

Each village consists of thirty or forty families, and is ruled by a council, with the elder or priest at its head. The land is held as the property of the community, and out of the crops covering it a long strip is assigned to be cultivated by each family. When the harvest is reaped the result is "pooled," and divided equally among the families constituting the community. Their cattle are herded in one huge pasturage and looked after by a herds-woman, who is one of the two officials to whom they pay a salary, the other being the priest. As a rule, the crops raised by them, and their whole system of farming, display a neatness and abundance rarely found either on Canadian or American farms.

Of late the Mennonites of Manitoba have devoted themselves with great energy and industry to raising flax on a large scale, finding it more profitable than wheat, which is so ex-

tensively cultivated; and in this undertaking they present the possibility of a remote result that would, if it occurred, furnish one of the most startling events recorded in the history of peaceful measures; for the extensive production of flax by the Mennonites would render them the instruments of one of the greatest dangers that ever threatened the commerce of Russia.

This plant, yielding three profits—one from the fiber, another from the seed, and a third from the refuse, which is made into paper—offers peculiar inducements to the thrifty and money-getting Mennonites. A writer on this subject in an English paper says: "The time is not far distant when flax and hemp grown upon the boundless plains of Northwestern Canada will supersede the analogous products of Russia in every European market, and when the linen manufactories of Belfast will draw their raw materials from a country to which the simple and thrifty Mennonites were banished by the overreaching ambition of the Romanoffs." With two hundred and fifty millions of acres awaiting cultivation, either under wheat or flax—and the latter far the more remunerative crop—this prediction is far from being impossible of fulfillment, particularly as the Mennonites, with their remarkably intelligent and persevering system of farming, backed by their cupidity and their keen insight into the best objects of commerce, will meet with fewer obstacles in the cultivation of flax than are common with this unusually difficult plant to raise.

Hitherto the flax grown in Russia, although enormous in quantity, has been inferior in quality to that produced by Holland, Belgium, and Ireland. Yet it has lately constituted one of the most important exports of that country, while its tallow and wheat trade have gradually declined. Meanwhile the quality of the Manitoba flax is admitted to be the finest in the world, and the crop, which is believed in Europe to be of an exhausting character, can be grown without fertilizers for generations to come in the rich loam of the Canadian prairies. Moreover, the Russians have recently imposed prohibitive duties upon the linen manufactures of Great Britain, and have instituted an annoying system of espionage and interference with the importation by the manufacturers of that country from the Baltic of the necessary raw material. So persistent has this become that the British manufacturers are beginning to look hopefully to the increasing crop of superior flax for which the Mennonites of Ontario and Manitoba are becoming famous. During the year 1886 a single firm in Ontario sent over a thousand tons of flax to Belfast, the quality of which, it is said, can not be surpassed for excellence. While the aggregate number of Mennonites in the United States exceeds fourfold those of the Dominion, the former are generally engaged in the usual occupations of the communities in or near which

they reside. The outcome of this novel agricultural experiment in Manitoba, with its possible results in relation to commerce, can not be viewed without profound interest.

In the autumn of 1874 a small colony of Mennonites, comprising eighteen families, came to the United States from southern Russia, and settled themselves in southern Kansas, Marion, McPherson, Harvey, and Butler counties. These people were comparatively poor, having brought with them an average of \$500 apiece. They bought wild land from the railroad (the Atchison, Topeka, and Santa Fe) and went to work clearing with such energy that they were soon in comfortable circumstances. This colony was soon followed by a larger migration, which continued steadily, and in five years there were 14,000 Mennonites in the four counties named, who, in that brief time, had almost without exception paid for their farms. These farms range between eighty and three hundred acres, with good, comfortable houses, large barns and granaries, orchards and groves, cattle, hogs, and sometimes sheep in abundance. The land, except a few acres reserved for pasture, is generally under a high state of cultivation, and the whole free from indebtedness.

The colonists brought with them many of the clumsy farm-implements they had used in southern Russia; but, on seeing those employed by the American farmer, they discarded these and adapted themselves easily to the use of the better implements. As is the case with those in Manitoba, the Kansas Mennonites burn the refuse straw from their barns, chopped up, dried, and cut into blocks. They never build their houses at a distance from one another, but invariably in little clusters of two or three, or perhaps a dozen, thus forming a number of little villages at a distance of from two to four miles apart. An example is cited of one of these Mennonites who brought with him to Kansas one thousand dollars. He had a family of ten children to support, and by the time he had purchased his farm, erected buildings and bought implements, he was in debt a thousand dollars. This was in 1874, which was followed by a "grasshopper" year; 1877 and 1878 were two "dry" years, yet in 1879 he was entirely out of debt. He had then a farm of three hundred acres, a comfortable house, plenty of out-buildings, farm-machinery of the very best quality, groves of growing forest-trees, a thrifty young orchard, plenty of neat, closely trimmed mulberry-hedges, and the whole free from weeds, refuse, and litter, and kept in the neatest manner. At this time he estimated his farm to be worth four thousand dollars. This, which is a genuine instance, is only a type of the success that has attended the industry and economy of the whole population of Mennonites in Kansas. The difference in success between the Mennonite colonists and the native farmers has been observed in Kansas as in other sections of

the country, and one cause to which it is attributed is the different intentions of the two classes in purchasing their farms and working them. The Mennonite has no object in view but that of establishing and maintaining a permanent home for his family. The native, on the contrary, buys with a view to selling at an advance in the future, and is content with putting a few improvements on it, and holding it for a possible purchaser.

METALLURGY. Iron and Steel.—Mr. P. H. Dudley has made observations in the examination of railway car-wheels which indicate that the value of iron and steel is largely dependent on other conditions than that of mere chemical composition. Mr. J. Lynwood Garrison has reported upon microscopical examinations of iron and steel which go to show that these conditions are largely those of structure and of arrangement of particles. A specimen of No. 3 gray pig-iron was seen, under a power of fifty diameters, to consist of a heterogeneous mixture of metallic iron and long, narrow black plates of graphite, without crystalline structure—the graphite plates appearing like straight black lines standing out in relief. White pig-iron exhibited a highly crystalline structure, the intensity of the crystallization seeming to depend very much upon the degree of chilling, while the graphite plates were few, and parallel to the lines of crystallization. Wrought-iron or mild steel exhibited a fibrous structure running in the direction in which it had been rolled; and wrought-iron (not steel) did not show, even under a power of a hundred diameters, any trace of crystalline structure. Hard or tool steel was highly crystalline, uniform in structure, and showed no lines of weakness or tendency in the crystals to develop themselves in any given direction. File-steel differed from crucible-steel only in being somewhat more compact and harder. All steels exhibit a similar characteristic structure, which will enable a person, with practice, to judge of their relative qualities by a simple comparison of their compactness, luster, and crystallization. Meteoric iron had a structure of its own, quite different from that of any of the artificial irons or alloys of iron and nickel. In a "burned-out" grate-bar of ordinary cast-iron, the side away from the fire showed the structure of unaltered cast-iron, while the side exposed to the heat was changed, to the thickness of one tenth of an inch, into a hard, compact steel. Examinations of "good" and "bad" car-wheel iron showed that the quality of the iron was dependent to some extent upon the distribution and arrangement of the graphite plates. In the good iron, the plates and lines of graphite were very marked, and appeared as an irregular mass of small black lines, while the surrounding mass of metal presented a compact, granular, non-crystalline structure, frequently containing cavities due to occluded gases or air. In the poor iron, while the mass of the metal ap-

peared to be the same as that of the good wheel, the well-developed and prominent graphite plates were absent, and were replaced by graphite in irregular and somewhat isolated plates of comparatively large size, without any regular grouping. A weak and almost worthless pig-iron showed similar characteristics. A high-grade hot-blast charcoal pig-iron exhibited a similar structure with that of the good wheel-iron, the only differences being in the size and prominence of the graphite plates. It is generally believed that the presence of graphite in quantity, after a certain limit is passed, renders the metal weak. Mr. Garrison's experiments indicate that the development and distribution in well-defined lines or plates of this substance is at least as important a factor of quality, up to a certain limit, as its total amount. Mr. T. Turner has shown that no general rule can be laid down as to the influence of remelting on the properties of cast-iron; chemical changes take place during the melting; the amount of silicon is reduced while that of the sulphur is increased, and the effect of remelting will be dependent upon the proportion of these elements present in the cast-iron; a single melting will be sufficient to produce a deterioration in the quality unless the silicon is in excess. Addition of silicon to hard white iron causes it to become soft and gray, and too much silicon makes the iron weak; by adding silicon in right proportion, cast-iron can be made of any desired degree of hardness. Mr. Turner has succeeded in making a steel in which the carbon is replaced by silicon, which can be hardened like steel, is very tough when cold, and is well adapted for tools, but is difficult to work when hot.

A process of direct melting of wrought-iron into the articles to be made from it, has been introduced into the manufactures of several countries of Europe. It is called the "Mites process," and by it wrought-iron is formed in solid, homogeneous castings, without changing the quality of the metal. It depends upon the addition to the raw materials employed of an exceedingly small percentage of aluminum, which has the effect of causing an immediate and considerable lowering of the melting-point of the wrought-iron. By this means the apparently paradoxical result is obtained of effecting the necessary superheating of wrought-iron without raising the temperature above the melting-point, and the absorption of the furnace-gases, inevitable in superheating at the excessively high temperature required in the ordinary processes, and the consequent deterioration of the quality of the metal, are avoided.

Mr. A. C. Meriten has introduced a new method of protecting iron by exposing the article in a bath at a temperature of from 158° to 176° Fahr. to an electric current. The water is decomposed, and oxygen is deposited on the metal, while hydrogen appears at the

other pole. If the conditions are as they should be, the magnetic oxide, which resists the action of the air, and will protect the metal beneath it, is formed.

A property of iron and steel to show a lowering in tenacity at certain temperatures approaching a blue heat has been remarked by several writers. Prof. Ledebur, of the Freiburg School of Mines, has cited an instance in which a breakdown could be attributed to the fact that the material was made at this dangerous heat. A new pump-rod of Bessemer steel, well tested and having ample suction, broke soon after being put in; and several times afterward during the year. No other cause being shown for the breaking, Prof. Ledebur believes that he is justified in assuming that the rods were probably worked at the dangerous blue heat.

Prof. D. E. Hughes has observed that steel and iron wires are made brittle by being immersed for a few minutes in acidulated water. His first experiments were made with water containing one tenth sulphuric acid, but the continued prosecution of his researches showed that the brittleness was no mere accidental result, due to some flaw in the steel and iron wires, but that it is invariable in all kinds of steel as well as of iron; that it is not dependent on any specific proportions of sulphuric acid to the water, nor, in fact, on the use of any particular acid. The effects, however, seem to be confined to steel and iron, as no perceptible change was obtained in copper and brass. Tests instituted for the determination of the fact have failed to give any of the signs that indicate a change in the molecular structure of the wires, but the fact that very evident results are produced when the conditions of the experiments are such as to favor the absorption of hydrogen, has induced Prof. Hughes to assign that as the cause of the phenomena noticed.

The uniformity of the quality of open-hearth steel was illustrated by Mr. George E. Thackray, of Pittsburg, before the American Institute of Mining Engineers, by a calculation of the deviation in two lots of steel. In one lot of 73 consecutive heats of steel containing 0·18 per cent. of carbon, the average deviation in carbon was found to be 0·0068 per cent. In another lot of 26 consecutive heats of boiler-plate steel containing from 0·13 to 0·16 per cent. carbon to suit different requirements, the average deviation was 0·0033 per cent.

Mr. Choubley has confirmed the observations made by Herr Wassum on the influence of copper in steel upon its rolling qualities, which were to the effect that 0·862 per cent. of copper did not, in the absence of sulphur, produce red-shortness. Noting that Wassum's tests were conducted with steel, low in phosphorus, Choubley made some additional experiments to determine what influence phosphorus and copper have. The result, with five blows of slightly different composition, has been to

show that steel with 0·50 per cent. of carbon, from 0·40 to 0·50 per cent. manganese, 0·20 per cent. phosphorus, and 0·50 per cent. copper, does not exhibit red-shortness.

Aluminum.—A description of the Cowles electrical furnace for the reduction of aluminum and other metals was given in the "Annual Cyclopædia" for 1885, together with an account of what had been accomplished with it. The inventor of the furnace, Mr. Cowles, in a paper read before the Franklin Institute in January, 1886, gave some calculations concerning the workings of his method and its economical aspects, including both what had been realized and what he expected to obtain. The apparatus has been employed "for the purpose of experiment in the reduction of refractory ores for the production of metallic calcium, magnesium, potassium, sodium, silicon, titanium, and the manufacture of aluminum and aluminum-bronze and other alloys," and includes two brush dynamos, one of them a very powerful machine. It weighs more than 7,000 pounds, and at a speed of 907 revolutions per minute produces a current of 15·75 ampères with an intensity of 46·7 volts. From this engine an average daily production of at least 300 pounds of 10 per cent. aluminum-bronze for 20 hours' work is expected, besides about 60 pounds of metallic aluminum in the by-products, a large proportion of which may be cheaply reclaimed and made marketable. This total quantity of 90 pounds of the metal in 20 hours is equivalent to 4½ pounds an hour; and this, produced by the energy of 120 horse-power, gives the consumption of about 26·6 horse-power per hour, as required to reduce 1 pound of aluminum. The 10 per cent. aluminum-bronze may be sold without financial loss at 45 cents per pound net as against the ordinary price of \$1.30 per pound. The list price of the product is 60 cents per pound. By the addition of zinc to the lower grades of aluminum-bronze an aluminum-brass is produced which is at once tough and malleable, and of greater tensile strength than ordinary brass. It has also superior power to resist corrosion and oxidation, and can be made from the aluminum-bronze at a cost of 18 or 20 cents a pound. The inventor claims that he can charge iron, manganese, tin, copper, nickel, etc., with a very high percentage of metallic aluminum, and that also, without any base metal in the furnace, he can saturate the charcoal contained therein with metallic aluminum, most of which will be in a state of mechanical mixture with the carbon; and, further, that specimens of aluminum, 99 per cent. pure, have been produced in at least three different methods by the electric furnace. Prof. C. B. Maberry related to the American Association that in his later experiments the inventor had found that the efficiency of the charcoal could be increased, and the formation of graphite prevented in part by coating the charcoal, previous to using it, with lime. The quantity of

product was increased when the electrodes were allowed to enter the mixture of ore and carbon, at an angle of about 30° from the horizontal plane. A continuous reduction is more easily effected when the electrodes are capable of being drawn apart so as gradually to expose fresh portions of ore to the action of the current. By an adaptation of the furnace for the reception of very powerful currents, the energy from 300 horse-power may be utilized, instead of that from 30 horse-power, which was formerly employed. An assertion which had been made by Dr. Siemens, that aluminum could not be reduced without copper, was pronounced erroneous. Mixtures of metallic aluminum and carbon had been repeatedly taken from the furnace in large quantities. By reducing aluminum in presence of iron, a cast-iron is formed, sometimes containing as much as 10 per cent. of aluminum, and this product is used to facilitate the working of crude iron and to introduce into the various grades a small percentage of aluminum. The slags resulting from this reduction are composed chiefly of calcic aluminate and cast-iron. In the reduction of aluminum in the presence of copper a yellow product is frequently taken from the furnace which is composed of metallic aluminum to the extent of one half or three fourths, the rest being silicon and copper. With a small percentage of calcium it is also formed in the absence of copper, and then contains a higher percentage of aluminum and often nitrogen. It has a resinous luster, and decomposes water at 100° C. The aluminum slags are composed of reduced metal, calcic aluminate, and fused oxide, and a carbide of aluminum may also be present. A bar of 10 per cent. bronze which had been heated for the purpose of forging, was allowed to become too hot, and when struck the entire bar assumed a crystalline condition. Some of the individual crystals were nearly perfect in form, resembling some of the forms of the isometric system. In the reduction of silicon the formation of a greenish-yellow substance is frequently observed, and it has proved by analysis to be a new oxide of silicon—SiO. By fusion with fluxes it is converted into the dioxide, and hydrofluoric acid acts upon it the same as upon the dioxide. Large works for the production of aluminum are in course of erection at Hamelin, near Bremen, at which the Graetzel process, consisting in passing a powerful electric current through a bath of molten sodium aluminum chloride, is to be employed.

Mr. J. W. Mallet, having prepared and examined a specimen of pure aluminum, has found its color to be perceptibly whiter than that of the commercial metal, it being on a cut surface very nearly tin-white. The luster is also very much like that of fresh, untarnished tin. The metal was distinctly softer than before purification. Hence its fracture was not easily observed, but it seemed to be very fine-grained, with some appearance of fibrous silkiness. The

malleability was improved, and the specimen seemed to be sensibly less hardened by hammering than the metal of commerce. The specific gravity was determined to be 2·583.

Robert L. Thomson recommends, for the determination of aluminum in the presence of large proportions of iron, the reduction of the iron, if in the ferric, to the ferrous condition, by means of sulphurous acid. Phosphoric acid, or phosphate of ammonium or sodium, is then added; then ammonia till a faint permanent cloudiness is formed; then excess of ammonia, which throws down the alumina as a phosphate. The precipitate is dissolved in hydrochloric acid, and an excess of caustic soda is added. After boiling and filtering, the filtrate is acidulated with hydrochloric acid, and an excess of phosphoric acid or phosphate of ammonia or soda. The normal phosphate of alumina is then precipitated by means of ammonia.

Alloys.—According to Prof. W. Chandler Roberts, of the Royal Mint, the term alloy is usually applied in ordinary language to the mass formed by mixing a base metal with a precious one, while in scientific language it indicates the base metal which is added. Alloys are used in preference to pure precious metals for various reasons, chief among which is the fact that they are harder and more durable. When a base metal is to be chosen for mixture with a precious one, it should be borne in mind that the resulting alloy must have the qualities of good color, ductility, and freedom from brittleness. Silver forms a very ductile alloy with gold, but lowers the color, while copper forms a durable as well as a ductile alloy, and lightens the color. At the mint, the qualities sought as most desirable in an alloy are: 1. Ductility; 2. Durability; and 3. Uniformity of composition. The alloy is, besides, expected to be sonorous, and to possess the degree of viscosity which will enable it to flow under pressure into all the fine lines of an engraved die, while the metal must be rigid enough to retain its impression when submitted to rough usage. The fineness of alloys of silver is computed with reference to the troy pound. The computation in the case of gold alloys is based on the singular "carat" system, which has within two years given way at the British Mint to a decimal system.

M. Bourbonze employs, in place of brass for the internal parts of optical instruments, an alloy of aluminum and tin in the proportion of 10 parts of tin and 100 parts of aluminum. The alloy is white, has a density of 2·85, and can be soldered as easily as brass.

Processes.—Hamilton Y. Castner has described his new process for the production of the alkali metals, by means of which he claims that a large saving is effected over the old process by heating the carbonate of the alkali (soda or potash) with charcoal and iron. It consists in reducing either the hydrate or the carbonate of the alkali, when in a fused

state, at moderate temperatures, by the use of the carbide of a metal or its equivalent. By the equivalent of the carbide of a metal, the author means a mechanical compound of carbon and metal, from which the metal can not be separated except by the aid of acids or intense heat; and such a compound he produces by coking a mixture of tar and finely divided iron. By this means an excess of carbon is avoided, and the use of lime is rendered unnecessary. The reducing substance, by virtue of its composition and gravity, remains below the surface, and is therefore in direct contact with the fused alkali. The author prefers to use caustic soda in the preparation of sodium, on account of its fusibility, and with it to mix such a quantity of the so-called "carbide" that the carbon contained in the mixture shall not be in excess of the amount theoretically required to reduce all the soda to sodium. Mr. Castner is able to obtain by his process fully 90 per cent. of metal, instead of 30 per cent., as formerly. He claims that the method is more simple in its details, and does not require the care and management necessary in carrying on that now used; that, performing the reduction at a comparatively low temperature, it saves in fuel and prevents the excessive destruction of iron, which at present stands for one half the cost of the sodium produced; and that it greatly increases the yield of sodium. The process is equally applicable to potassium.

Mr. W. H. Harrison, of Sydney, has introduced a new process for the reduction of iron-ores. Hydrogen and bicarbureted hydrogen (coal-gas) are injected into the blast-furnace. The hydrogen carries off the impurities, and pure iron is left in the bed of the furnace.

For zinc-coating objects which, on account of their large size or of their being fixed can not be plunged into the galvanizing bath of melted zinc, Neujean and Delaite, of Liége, recommend painting, in the ordinary manner, with finely powdered zinc, mixed with oil and a drier. The process is cheaper than ordinary galvanizing and equally durable.

By Zaboudsky's new method for determining carbon in cast-iron, the finely pulverized metal is mingled with a dry mixture of copper and sodium chloride. Water is added, and the mass is triturated. The whole is then gently heated with ferric-chloride solution, and hydrochloric acid is added. The carbonaceous material should remain undissolved. The residue is not pure carbon, but contains hydrogen and oxygen in combination.

In a method for testing phosphoric crude iron in open-hearth furnaces, described by J. W. Wailes, the process is similar to the ordinary puddling operation, and is conducted in a furnace with a basic lining; the metal is, however, removed from the furnace in a molten condition.

A method has been introduced for casting iron or steel on brass. The brass core is cast

in the usual way, and is then molded in conjunction with the pattern; when the latter is removed, the core is allowed to remain in the flask, and the melted iron is poured over it. The iron is prepared by a flux for ready amalgamation with the brass; and when the compound casting is taken from the sand, it is found to be a complete and well-connected piece, with the two metals in perfect union. When it is desired to separate the two metals, the brass is melted at a lower temperature than the melting-point of iron, and is then run out from its backing.

Mr. A. D. Elbers is the inventor of a process for the conversion of mineral wool into silicates previously desulphurized, to be used in the manufacture of china-cement, pigments, and absorbents. The suitable raw material for his purpose is uni-silicate or neutral slag, which contains the usual percentage of sulphur in soluble compounds. The first step in the conversion is the reduction of the slag to a finely fibrous condition by subjecting it, while in the fluid state, to jets of steam. While the steam divides the fiery mass into fibers, it also slightly reacts chemically on the sulphur compounds, whereby the fibers become predisposed to further reduction. The second operation is the roasting of the non-fibrous and very voluminous slag until no further evolution of sulphurous-acid vapors takes place, whereby the opening of the fibers and the reuniting or fitting together of their constituents freed from sulphur is accomplished. The fibrous slag has been changed to a granular substance of purified composition; if the heat is increased after the change has taken place, the result will be a fused mass of desulphurized slag; but if too much heat is applied before desulphurization, the fibers will be remelted into fused slag of the original composition. The whole product may be reduced to the most desirable condition in which it appears, described as "a mass of whitish, soft silicate, containing some impurities," by a proper regulating of the heat. This desulphurized and easily friable silicate is finely pulverized, and, after being purified by washing, is ready for use in the arts as slag-silicate of alumina, iron, and magnesia.

Malvern W. Iles has found his method for the decomposition of slags for analytical purposes by fusing the finely powdered slag with caustic potash in a silver crucible applicable to a large class of ores and furnace products. It is also capable of a wide application for estimating sulphur in slags and minerals by such fusions, and the subsequent use of bromine-water. The difficulty arising from the liability of the silver of the crucible to be attacked by alkali, is obviated by using gold-lined or platinum crucibles. With this modification the method is applicable to the decomposition of nearly all silicates, and to the estimation of sulphur in nearly all inorganic as well as organic bodies. Mr. Iles has now found, however, that it is not necessary to make a fusion

of the slag for purposes of analysis, but that, when the hot-flowing slag is suddenly cooled, it may be completely decomposed by concentrated hydrochloric acid, and becomes readily attacked by other acids.

M. F. Gautier has described a new neutral lining for metallurgical purposes, the main constituent of which is chrome-iron, a refractory material which is not acted upon either by acids or bases.

G. Hatton describes a new type of converter for the production of soft steel, which is claimed to have many advantages over the Bessemer converter.

A furnace adapted for the consumption of natural gas has been patented by Mr. R. W. Kennedy, of Pittsburg, Pa. The combustion-chamber is formed of fire-brick, and is inclosed by an air-chamber. In the combustion-chamber is a distributing plate made with a series of notches along the edge, which constitute passages for the escape of gas along the sides of the chamber. Directly above the distributing plate a number of openings are formed through the wall of the chamber that connect with the air-chamber, and run at an angle with the radii of the combustion-chamber, so as to impart a swirling or circular movement to the air, which keeps it in contact with the gas long enough to insure a thorough combustion.

The crucible furnace for steel-melting with natural gas at the Wayne Iron and Steel Works, Pittsburg, is a reversible-draught structure, with regenerative chambers at each side. The main chamber is in six divisions, each of a size to admit six crucibles, making thirty-six pots in heating at once. It is so adjusted that a single pot can be lifted without uncovering the others in the same division. There is nothing in this furnace below the ground-line except the foundation-walls, the regenerative chamber being at the sides. The crucibles used here may be made to yield a service of eight heats by rinsing them, when they begin to get worn, with a semi-fluid wash of plum-bago (old crucibles), silicon (white sand), and kaolin-water. This makes a layer just replacing the worn part.

A machine has been invented for polishing the interior of metal tubes. It consists essentially of a strong, trough-shaped iron bed at the end of which is attached mechanism for giving a rotary motion to a long bar which has secured to its outer end cylinders of emery; the pipes are held by means of a sleeve, which is carried along the bed-plate, at the exact speed desired, and is so arranged as to revolve in an opposite direction from that of the bar to which the emery cylinders are attached.

Mr. F. W. Dick, of Glasgow, has described a new form of furnace, embodying all the principles of the ordinary Siemens furnace, but differing from it somewhat in the construction and arrangement of its parts. The furnace and regenerators are separate from

each other, and are contained in circular casings of wrought-iron, or steel plates riveted together. The regenerators are also separate, one from the other. The arrangement consists of a circular furnace body placed on a platform supported by girders, while the regenerative chambers are placed in pairs at each end of the furnace. The furnace is thus left entirely clear underneath.

Origin of Ores.—Concerning the origin and manner of deposition of ores, Prof. von Groddeck, of Austria, and Dr. Sandberger, attribute the filling of veins to the exudations of mineral secretions from the wall-rocks, or to lateral secretions. Mr. S. F. Emmons, who has studied the deposits at Leadville, and Mr. G. F. Becker, who has examined those of the Comstock lode, credit the ores to the leaching of the igneous rocks. Prof. J. S. Newberry holds with Richthofen, that the ores mainly originated from below, and supports his view with illustrations from well-known American mines, going to show that neither of the other two theories can prevail. He admits lateral secretion as a contributory agency, saying: "It is certain that the nature of the deposit made in the fissure has frequently been influenced by the nature of the adjacent rock. Numerous cases may be cited where the ores have increased or decreased in quantity and richness, and have otherwise changed character, in passing from one formation to another; but even here the proof is generally wanting that the vein materials have been furnished by the wall-rocks opposite the places where they are found." Thus the quartz in the veins of the Star district of southern Utah could hardly have come from any other source than "from silica-bearing hot waters that flowed up along the side of the trap, depositing there, as in the numerous and varied veins of the vicinity, mineral matters brought from a zone of solution far below. . . . The results of all recent as well as earlier observations have been to convince me that Richthofen's theory of the filling of the Comstock lode is the true one, and that the example and demonstration of the formation of mineral veins, furnished by the Steamboat Springs is not only satisfactory but typical."

Electric Conductivity of Metals and their Alloys.—M. Lazare Weiler, in a paper read before the Société Internationale des Electriciens, gives the conductivities of different metals, as compared with silver and pure copper, as follow:

Silver.....	100.00	Tin with 12 per cent. of sodium.....	46.90
Copper, pure.....	100.00	Siliceous Bronze, tele- phonic.....	35.00
Copper, refined and crystallized.....	99.00	Copper with 10 per cent. of lead.....	30.00
Bronze, siliceous, tel- ephographic.....	98.00	Zinc, pure.....	29.90
Copper and silver al- loy, equal parts.....	86.65	Phosphor bronze, tele- phonic.....	29.00
Gold, pure.....	78.00	Brass, siliceous, 25 per cent. of zinc.....	26.49
Copper with 4 per cent. of silicon.....	75.00	Brass with 35 per cent. of zinc.....	21.50
Copper with 12 per cent. of silicon.....	54.70	Tin phosphide.....	17.70
Aluminum, pure.....	54.20		

Gold and silver alloy, equal parts.....	16.12	Bronze, mercurial, dromier.....	10.14
Swedish iron.....	16.00	Arsenical copper, 10 per cent. arsenic...	9.10
Tin, pure, banca.....	15.45	Lead, pure.....	8.88
Antimony, copper.....	12.70	Bronze containing 20 per cent. tin.....	8.40
Aluminum-bronze.....	12.60	Nickel, pure.....	7.89
Siemen steel.....	12.00	Phosphor-bronze with 20 per cent. tin.....	6.50
Platinum, pure.....	10.60	Copper with 9 per cent. phosphorus...	4.90
Copper, with 10 per cent. of nickel.....	10.60	Antimony.....	3.88
Cadmium, 15; mer- cury, 85.....	10.20		

Speaking of the conductivity of alloys, M. Weiler thus decides an important mooted point: "It should be remarked," he says, "that it is not true, though sometimes asserted, that in an alloy the electric conductivity is always lower than that of the poorest conductor of constituents. It is simply demonstrated that the union of two bodies modifies to a great extent their separate conductivities, and this fact ought certainly to lead sometimes to interesting results."

Miscellaneous.—Dr. Strohecker, of Frankfort, found that the clay in the neighborhood of Hainstadt, near Seeligenstadt, contains considerable proportions of some of the rare metals, particularly of cerium. Picked samples of the two upper layers of the clay gave 13.42 per cent. of cerium hydroxide in the flesh-colored and cinnamon-brown clay of the upper layer, and 9.40 per cent. in the darkish-gray clay of the second layer. The variations in color are supposed to depend upon diversities in the properties of the cerium hydroxide. The bricks made from the clay of the upper layer vary in color, according to the temperature at which they are burned; the lightly burned bricks having an orange-yellow color, while those burned at a white-heat are leather-colored, and have a silver-gray appearance. A variety of the second layer, which is black from the presence of lignite, yields lemon-yellow low bricks, through the conversion of the cerium oxide Ce_2O_3 into the lower oxide Ce_3O_4 by the action of the carbon which is present. The blackish-gray variety of the clay yields orange-red to orange-yellow bricks. A third layer of the clay contains less cerium than the other two, and the bricks made from it are of a fainter orange-color. The amount of glucina present is characteristic of the Hainstadt clay. Ammonium chloride, which occurs only in traces in some portions of the clay, exists in quantity in others. It appears from these analyses that the oxides of cerium, which have hitherto been regarded as of only theoretical interest, have a technical importance. They have long served as coloring substances in building-materials, without the fact having been known; and, from the large amount present in the Hainstadt clay, there are prospects of their being brought into use as paints. The small amount of iron present in the clay (Fe_2O_3 , 0.919 to 0.6356) was found to have no influence on the color of the bricks, which, however, was affected by the admixture of larger quantities of iron. The somewhat remarkable

fact that chemists have so long failed to recognize anything other than ferric oxide as the cause of the colors in these bricks, may probably be explained by the large number of shades of color produced by iron in its various stages of oxidation, by the presence of manganese, and by the employment of mixed clays containing the oxides of both cerium and iron.

It has long been known that the electrical resistance of selenium is largely reduced under the influence of light. Tellurium exhibits the same property in a much less degree. In the case of selenium the diminution has in some instances been found to amount to a large proportion of the entire resistance. In tellurium the diminution is less than 1 per cent. In 1877, Dr. Richard Börnstein, of Heidelberg, attempted to show that other metals, including gold, silver, and platinum, possessed the same property of having their resistance diminished though in inferior degree. Siemens and Hausemann, of Berlin, afterward completed an investigation in which they were unable to detect any action like that described by Börnstein. Börnstein then made other experiments, in which he believed he determined the property to exist in silver. The next experiments to be reported were those made by Arthur E. Bostwick in 1883. The results obtained by him agreed with those of Siemens and Hausemann, rather than with those of Börnstein, and led him to indicate the conclusion "that, if light causes any diminution in the electrical resistance of metals, it probably does not exceed a few thousandths of 1 per cent."

Mr. Shelford Bidwell has been experimenting on the changes produced by magnetization in the length of rods of iron, steel, and nickel. He has found that the length of an iron rod is increased by magnetization up to a certain critical value of the magnetizing force. If that is passed, the elongation is diminished in proportion as the magnetizing force increases. The amount of the maximum elongation appears to vary inversely as the square root of the diameter of the rod. In soft steel, magnetization produces elongation, and a temporary elongation, once produced, may be maintained by a magnetizing force too small in itself to produce any elongation. With hard steel, the critical value of the magnetizing force becomes very high. Nickel continues to retract with magnetizing forces far exceeding those which produce the maximum elongation of iron.

METEOROLOGY. Dr. W. von Bezold has described two periods in the history of the science of meteorology, according to the different methods of investigation that prevailed in them. The first period might be called the climatological period. It was then that the effort was made, from accumulated observations of the elements affecting the condition of the atmosphere over the globe, to deduce some general rule or principle; and this was sought by calculating the means of observa-

tions by the month, year, or period. These means were supposed to characterize the climate. Pursuing the lines thus marked out, Humboldt studied the isotherms of the year, of summer and winter, and their distribution over the surface of the globe, and Dove the monthly isotherms and the isanomalies. These means alone could not lead to a knowledge of the mechanism of the atmosphere. It was necessary to consider not general and empirical results, but the variable and continuous course of each of the meteorological factors, and to compare their variations with one another. This was recognized, and a new method of investigation was adopted which may be called the synoptical method. The course which should be followed in this method was indicated by Hamberger, of Jena, as early as 1801, who wrote: "Students in different provinces should join bands and observe at the same instants the variations of the mercurial column in the barometer and make notes of the condition of the thermometer, the appearance of the sky, etc." This is the only means of reaching a correct knowledge of the changing nature of our atmosphere. Buys-Ballot, in 1854, called attention to the importance of daily weather-charts covering a large extent of country. He distinguished between climatology and meteorology proper, the former being the study of the manner in which the weather comports itself over a certain extent of country for a considerable length of time; and meteorology as relating to a particular atmospheric condition, and the inquiry into its origin, the places of its prevalence, and the manner in which it moves over the globe. In 1854 Leverrier, by direction of Napoleon III, organized a telegraphic weather-service in connection with the observatory in Paris, and published the first series of daily weather-charts. The application of these methods soon made it clear that atmospheric movements are not the simple results of polar and equatorial currents, but are connected with points of maxima and minima pressures; that the air escapes in all directions from the former, and plunges likewise in all directions toward the latter, but in neither case following the radii of a circle, for the direction of the winds is always oblique to that of the center which they are approaching or from which they are removing. This, the law of Buys-Ballot, is the law of all atmospheric movements. The researches of Ferrel in the mathematical mechanics of the atmosphere have complemented it and given it the character of a general law. This law, with the synoptical method of observation, furnishes a ready explanation of the origin of rains. As the charts show that the air is precipitated from every direction toward the minimum, and yet the minimum is not destroyed—that is, the depressions are not filled up—it must be admitted that there is an ascending current at this point. Above the maximum, on the other hand, there is a descending cur-

rent. Hence we learn that ascending currents favor the formation of clouds and the fall of rain, while descending currents contribute to dry weather. Finally, the introduction of the mechanical theory of heat into the study of phenomena has thrown light on all questions relating to evaporation and the condensation of vapors in the form of rain. The synoptical method, which permits a representation of the meteorological condition of a whole country at the same moment, the recognition of the importance of the distribution of pressures as a factor of atmospheric movements, and the lessons of thermodynamics, are the bases of the meteorological science of the day.

Temperature.—The determination of the precise rate at which the temperature diminishes in passing to the upper regions of the atmosphere has been found to be very difficult. Meteorologists have therefore generally directed their efforts to the determination of the relation between pressure and temperature. Meendelef deduces, from the experiments made by Glaisher in balloon ascensions, that the temperature at the limit of the atmosphere is about -36° C. Woeikof computes, from the observations of the Russian aeronaut, Rykacheff, a mean temperature of -42° C.

The essential fact brought out in the temperature observations by Messrs. Mill and Morrison, of the Firth of Forth, is that the winter condition of the Firth is one of uniformly rising temperature from the river to the sea, and from the surface of the water to the bottom; while the summer condition is one of uniformly falling temperature from river to sea, and from surface to bottom. The temperature of the river Thurso, in the north of Scotland, has been observed at the mouth and at a point twelve miles inland. The river appeared to respond rapidly to changes of temperature. During the greater part of the winter the water kept close to the freezing-point, though never actually freezing, except at the margin; while the sea had been uniformly from 10° to 5° Fahr. warmer than the river, and its temperature had never been below 40° Fahr.

Mr. J. Morrison made monthly observations on the distribution of temperature in Loch Lomond and Loch Katrine, Scotland, from December, 1885, to March, 1886. At the point of deepest soundings in Lake Lomond the water was each month of uniform temperature from surface to bottom. In the deepest sounding on Loch Katrine a similar distribution was met with till February, when the point of maximum density was obtained. Uniformity still prevailed in March down to seventy fathoms. In April the temperature distribution usually found in spring had set in in both lakes, the surface being warmest, the bottom coldest, and the temperature falling more and more slowly with increase of depth. It was remarked that the warmth of the bottom layer increased monthly during the spring months over the deepest part of both lakes—a rise

which was evidently due to some drainage or oozing causing mixture. In both lakes the temperature becomes uniform along the whole length about the 4th of April. Mr. Morrison made similar observations in the Firth of Clyde in April and June, 1886. In April a deep layer of uniform temperature was overlaid by a layer of temperature rising serially to the surface. In June the layer of varying temperature had thickened to about twenty fathoms, while the deep temperatures were different in different parts of the field of observation, according, apparently, as they were exposed to the influence of currents from without.

The winter of 1885-'86 was abnormally cold in the British Islands. According to Mr. C. Harding's paper on the subject, in the Royal Meteorological Society, the greater deficiency of temperature occurred in the weeks ending January 25, March 1, 8, and 15. The temperature was below the average for the season over the whole kingdom in October, January, February, and March, while in some quarters it was also below the average in December, and in the northwest of England and over a great part of the north of Scotland in every one of the six months. The lowest shade temperature was 2° at Braemar on the 19th of January and at Alston on the 7th of March. From the beginning of January to the middle of March there was almost continuous frost, and during this period it froze for upward of sixty nights at many places. At Greenwich it froze on twenty-eight consecutive days, from February 14 to March 18, or for a longer period than had been recorded in fifty years. The excessive cold weather experienced at the beginning of March, and the unusual frequency of snowfall, were peculiar features of the season. Skating was afforded in Regent's Park in each of the four months, from December to March, for the first time since 1830, and for the fourth time in March. The temperature of the water in the Thames at Deptford was, on the mean, slightly in excess of that of the air. Observations at several stations in England showed that at one foot below the surface the greatest cold was reached during the first seventeen days of March; the mean was generally about 2° in excess of the mean air-temperature. The temperature of the soil at two feet was generally about 2° in excess of that at one foot.

The logs of ships traversing the North Atlantic show that abnormal conditions extended also a considerable distance to the westward. They show a decided tendency to a low barometer, during the early months of 1886, in the locality where a high barometer generally prevails, and to the north of this low barometer strong and persistent easterly winds were experienced.

An analysis of the temperatures of Scotland during the past 122 years by Mr. Buchanan shows that the last fifteen years have been distinguished by the coldest consecutive sum-

mers. Each of the fifteen Junes of these years, except that of 1873, which was $0^{\circ}2'$ above it, and the means of the months from April to December, were below the average, while the means for January, February, and March had been above the average. Thirty-eight hard winters had occurred, lasting from two to six months each, of which eighteen had been followed by "good" summers and twenty by "bad" summers.

The committee of the British Association to investigate the depth of permanently frozen soil in the polar regions, etc., has collected a large number of observations from various quarters in the Eastern and Western Continents, without obtaining such results as might enable them to formulate a general law. At the American stations ground-ice has been found at depths ranging from six or eight feet to about fifty feet. At the circumpolar station of Fort Rae, on the Great Slave Lake, latitude $64^{\circ} 20'$ north, longitude $124^{\circ} 15'$ west, the soil is frozen at a depth of four feet from November to June, inclusive, and is at the lowest temperature at that depth in March. The mean temperature of the soil reaches its minimum at about the time of the vernal equinox. A rise was observed in the earth-temperature of February above that of January or March. It did not appear that temperatures below 32° F. extend lower than eleven or twelve feet. Capt. Dawson believes that the earth-temperatures recorded here are above what is probably the average in that latitude, because of the southwesterly slope of the ground and its consequent direct exposure to the sun; whereas in most places the ground is either covered with thick moss or shaded with brushwood. Relative to other American stations the committee reports that "there is want of proof of the existence of permanent ground-ice beyond the district of Mackenzie river in the northwest; but frozen soil has been known to exist at a depth of seventeen feet at Fort Simpson, at Prince Albert, and at Yorkton, and it may be questioned whether the wave of summer heat has time to descend to such a depth before it is overtaken by the refrigerating influence of the early winter. It certainly exists also in the neighborhood of Hudson Bay, on the eastern side, and it is evident that under favorable conditions frost, without being permanent, may, in some cases, last in the soil all the year round over a wide area, and in other years disappear. At whatever level we locate the maximum of absorbed heat, it must be remembered that when the winter sets in and freezes the surface, which it does rapidly to the depth of a foot or two, the heat will then be abstracted in both directions, and its rate of descent checked."

Dr. Wosikof observes, in a paper on the climate of Eastern Siberia, pertinently to the great depth (from about 300 to 600 feet) to which the soil is permanently frozen near Yakutsk, in the Lena valley, that the farther

north, the longer is the duration of cold in valleys in comparison with that on higher ground. The effect extends to a part of autumn and spring, and is observable in the mean temperature of the year. At the heights on the left bank of the Lena in the vicinity of Yakutsk, the earth-temperature is from $8^{\circ}1'$ to $8^{\circ}6'$ F. higher than it is in the town and valley at the same depth, and it is even lower at 300 feet in the former than at fifty feet in the latter locality. The total depth of frozen soil is, according to Mitendorf, more than twice as great in the valley as it is on the heights; and these lesser heights are in winter relatively colder than higher isolated mountains. Kupffer asserts that in Bergivier Nercinsk, in the Trech Swjatitilei mine, frozen soil was found at a depth of 174 feet, but that in Wossdwichenst mine, which lies 230 feet higher, the frozen soil ceased at fifty feet. Even in Altai it is acknowledged that many valleys are colder than the neighboring heights. Dr. Woeikof sums up a number of observations in the following sentences, which apply to the greater part of East Siberia, but more particularly to the northeast portion:

1. As the greater cold coincides with calms and light winds, the valleys and lower grounds are colder than the heights.

2. The temperature of isolated mountains is relatively higher than that of lesser elevations.

3. The lowering of temperature in the valleys is so lasting and considerable that the mean of the year is also lowered, as is proven by the observations of earth-temperature.

4. The depth of the frozen soil is greater in valleys, and is so lasting and considerable that the mean of the year is also lowered.

5. In the tundras of the far north (answering to the barren grounds and muskegs of the Northwest Territory of Canada) the winter is warmer than in the valleys of the forest-zone, probably because the stronger currents of air do not permit the cold stratum to remain so long stagnant.

Dew.—Mr. Aitken has promulgated a theory that dew is a condensation, not of moisture in the atmosphere, as is supposed by the usually accepted theory, but of moisture that exudes from the ground. His attention was called to the subject by observing at night that the ground, at a short distance below the surface, was always hotter than the air over it, the contrary of the conditions required by the accepted theory. The author inverted shallow painted trays of metal over the grass. These, known to be dry when set down at night, were coated with dew in the morning, while the grass under them was wetter than that outside of them. The rise of vapor from the ground was thus demonstrated. Other experiments showed that ground on which dew was formed, whether sod or bare soil, lost weight in the process, whereas it should have gained if the dew had been deposited from the atmosphere. In times of frost, clods and stones were more

thickly coated on the under than on the upper side. Mr. Aitken's examinations of roads contradicted the general opinion that dew is not formed in such places, and gave support to his theory; for while dew was not visible on the surface of the roads, the under sides of the stones of the gravel were found dripping wet. Slates placed over the gravelly part of the road, and also over a hard, dry part, were likewise found dry on top and wet beneath. Examinations of the different forms of vegetation led to the conclusion that the large drops of moisture, which appear at the tips of the leaf-blades, were not dew, but exudations, effects of the vitality of the plant. Mr. A. T. Fraser, of India, has found in Mr. Aitken's theory an adequate explanation of the phenomenon, often observed, of the luxuriant vegetation that appears where tools are left to lie upon the grass. The outer surfaces of the iron parts radiate quickly at night, and the stratum of air inclosed between the metal under surface and the earth is therefore saturated with condensing moisture.

Clouds.—Mr. A. W. Clayden draws the conclusions, from measurements made during the summer of 1885, that clouds of less than 2,000 feet in thickness are not often accompanied by rain, and if they are, it is only very gentle, consisting of minute drops. With a thickness of between 2,000 and 5,000 feet, the size of the drops is moderate. As the thickness augments, the size of the drops increases, and their temperature becomes lower, until, when the thickness is upward of 6,000 feet, hail is produced. The author points out that all observations tend to show that, except under abnormal conditions, the temperature of the atmosphere falls as the height above the sea-level increases; and there seems no reason for assuming that the law does not apply to that portion of the atmosphere which forms a cloud. Hence, if a drop were to be formed at or near the upper surface of a cloud, it would fall down into a region saturated with vapor at a temperature above its own. The result will be further condensation, producing a larger drop; and this process will continue until it leaves the cloud. If its temperature is below the dew-point of the air, it falls through; condensation will continue until it reaches the ground. This subsequent gain can not, however, bear any very large proportion to the growth while falling through the saturated cloud; hence, the conclusion follows that the size of the drop must increase with the thickness of the cloud. The author suggests that condensation begins on the upper surface of the cloud by the cooling of some of the liquid cloud-particles. If this particle is cold enough it will solidify, and snow will be formed. Should it not be quite cold enough to solidify at once, owing to its minuteness, but remain still below the freezing-point, hail is formed. Finally, if the temperature is not low enough for either snow or hail, rain is produced.

Rainfall.—Mr. John Murray has made an estimate of the extent of the areas of the different mean annual rainfalls over the globe. The amount of rain that falls upon the globe annually is estimated at from about 34,000 to 35,000 cubic miles. Taking the inland drainage areas disconnected with the sea, such as the Sahara Desert, it is found that 77 cubic miles fall upon those surfaces, which must be regarded as equivalent to the amount of evaporation. He cites the American calculation that 99,000,000 millions of cubic feet fall annually over the Mississippi drainage area. Estimating the outflow of the river, it appears that only one fourth of that water reaches the ocean. By extending the inquiry over large areas, it is hoped to make it of some practical importance.

In investigating the rainfall of the British islands for the 24 years, 1860 to 1883, according to the account given by Mr. Alexander Buchan, observations were examined from 1,840 stations. The results were marked upon the map so as to show six classes of regions or divisions, namely, those in which the annual rainfall did not amount to 25 inches, and in which it was from 25 to 30, 30 to 40, 40 to 60, and 60 to 80 inches, respectively. The regions of heaviest rainfall comprised the greater part of Skye and a large portion of the mainland to the southeast, the greater part of the lake district, a part of the more mountainous portion of North Wales, and the mountainous district of the southeast of Wales. Of these, the west Highlands present the most extensive region, and offer a practically unbroken wall directly in the course of the rain-bringing winds from the Atlantic. But south of this region, from Luss to the lake district, the rainfall nowhere rises to 80 inches; the diminution is ascribed to the interposition of Ireland in the path of the Atlantic winds. St. George's Channel and the Irish Sea open a free passage to the southwest-westerly winds, which are here diverted into a more southerly course, to the north of England and Wales; and accordingly, when the mountain masses of the lake district and Wales oppose their course, the maximum rainfall is again reached. The largest region of 60 to 80 inches rainfall is in the west Highlands, surrounding the region of 80 inches and upward. An annual rainfall of from 40 to 60 inches covers extensive areas of the islands; the rate of at least 40 inches characterizing the climates of about a fourth part of the surface of England, about half of Ireland, and considerably more than half of Scotland, which latter, taken as a whole, is by far the雨iest of the three divisions of the United Kingdom. The breakdown at various intervals of the hilly plateau, which stretches along the west of Great Britain, has a striking influence on the distribution of the rainfall. Thus the opening of the Bristol Channel furnishes an avenue for a more generous watering of a large portion of central England, the breakdown of the plateau between the Pennine range and North Wales, and the lowering of

the water parting between the Firths of Forth and Clyde, furnish striking effects. The valleys of the counties of Kirkcudbright with Dumfries and the intervening ridges lie athwart the course of the rain-bearing winds, and show the inevitable result of a rainfall successively diminishing on advancing eastward. Several local characteristics of rainfall, fully described in Mr. Buchan's paper, afford some remarkable illustrations of the principles by which the amount of precipitation is controlled or modified. In Scotland, no rain-gauge gives an annual average under 25 inches; but the driest regions, where that figure is only a little exceeded, are those which are protected by highlands from the rains of the southwesterly winds, and also from the down-pours of the southeasterly winds. In Ireland, only a small district round Dublin shows a rainfall of less than 30 inches, and this district is protected by the Wicklow mountains. As in that island there is no continuous mountain-mass stretching north and south, there is no such great difference of rainfall and temperature between its eastern and western climates, as in the case of Scotland and England. The results of the inquiry, as a whole, show that the key to the distribution of the rainfall of the islands is the direction of the rain-bringing winds in their relation to the configuration of the surface.

Mr. Blanford has deduced from the study of the meteorological registers the following theory of the winter rains of northern India: We have, in the first instance, steady evaporation over an extensive moderately humid tract, at a comparatively low temperature, but in an atmosphere, the stillness of which allows the steady diffusion of the vapor to high levels, and the consequent formation of cloud. The slight disturbance of the baric equilibrium which follows is succeeded by a gentle indraught of warmer and more humid air from the south; for the Himalaya bars access to northerly winds. A vortex is then rapidly formed, accompanied with an increased cloud-formation, and speedily followed by precipitation, which takes the form of snow on the hills and rain on the river-plains. The rainfall is invariably succeeded by a cool wind, and a wave of high pressure from the west, which the author attributes to a drainage of cool, heavy air from the valleys of the hills surrounding the Punjab and the highlands of Beloochistan and Afghanistan—air cooled by precipitation on the mountains. If this theory be correct, the stillness of the atmosphere, combined with the presence of a moderate evaporation, must be accepted as the condition which primarily determines the formation of barometric minima and the winter rains of northern India.

Dr. Hellmann, in communicating the tabulated results of the registration at eleven stations west of Berlin, for the six months from July to December, has called attention to the fact that in the winter months the values yield-

ed by the different rain-gauges coincided very closely, whereas in summer differences reaching as much as 50 per cent. occur.

Rainfall-maps of the Cape Colony were shown at the Indian and Colonial Exhibition in London, in which were embodied the results of observations made at 75 stations, which had been in operation for five years previous to the end of 1883, and at other stations where observations had been taken for less time. They show that the conditions which determine the rainfall are not the same for the whole of South Africa. In the southwest district of the Western Province the most rain falls in the winter months, while in the Eastern Province and in Natal and the Orange Free State the greater portion falls in the summer. On the southern seaboard of the Cape Colony the rainfall is irregularly distributed throughout the year. The northwest part of the colony appears to be almost rainless. With the exception of the tract occupied by the Namaqualand mountains, the average yearly fall in this desert is less than 6 inches. Throughout most of the colony the yearly rainfall varies from 6 to 18 inches. The smaller falls are characteristic of the regions in the interior, generally known as "the Karroo," including plateaus from 2,000 to 4,000 feet above the level of the sea; while the greater falls are found nearer the sea and in the mountainous parts. According to Mr. Gamble, the hydraulic engineer of the colony, the variations in the rainfall are due chiefly to the sea-currents and the prevailing winds. The eastern regions get their rains chiefly in summer with the southeast trade-wind; the western mainly in winter, with the northwest wind. From whatever direction the rain may come, it seldom penetrates beyond the mountain-range which runs parallel to the coast.

Storms.—From a study of 650 thunder-storms that occurred in Italy in 1881, Signor Ferrari concludes that every thunder-storm is connected with a barometric, hygrometric, and thermic depression, being behind the two former and in front of the last. All three depressions, but especially the two latter, are associated with maxima, which are situated behind the barometric and hygrometric depressions, but before the thermic one. For a given moment the thunder-storm has the form of a long, narrow band, advancing, with numerous bends, outward and inward, parallel to itself, and having its various characteristic phenomena most intense along the middle line. The *isohytes*, or curves of equal rainfall, often take the form of ellipses, whose longer axes coincide with the direction of the storm. The dominant wind-direction is generally parallel to that of the propagation of the storm.

Although actual observations of the birth of a storm are lacking, Mr. W. Clement Ley, in reviewing the storms of October and early November in Great Britain, premises the following as the conditions which would probably be

found to accompany the event: 1. Barometric depressions are principally developed over a region where atmospheric gradients are slight, the exceptions to this rule being those systems (secondary or subsidiary, as they are termed) which first appear as loops or bulges in the isobars of a large pre-existing cyclone. 2. They originate either in the rear of a depression, which has already passed away, or in the interspace between two large anti-cyclones, and more especially when the anti-cyclones are so large that this interspace constitutes what is called a "trough" of relatively low pressure. 3. They are preceded and accompanied by an enormous condensation of vapor into cloud. 4. They do not, at the moment of their birth, appear to affect the upper currents of the atmosphere, but, if growing large, soon afterward do so. In the depressions, the development of which near the British coast and over the southwest of France gave the occasion for Mr. Ley's observations, the greater number originated in troughs of relatively low pressure, and their movements might be said to have been unusually erratic. Yet they obeyed the ordinary rule of progression, in so traveling as to have the highest general pressures on the right of their course.

At the meeting of the Royal Meteorological Society, November 11, a paper was read by Mr. C. Harding on the storm of Oct. 15 and 18, 1886, over the British Islands. "This storm was of exceptional violence in the western, southwestern, and southern parts of the islands, and was felt over the whole kingdom. By the aid of ships' observations it has been tracked for a long distance out in the Atlantic. It appears to have been formed about 250 miles to the southeast of Newfoundland on the 12th, and was experienced by many ocean-steamer on the 13th. When the first indication of approaching bad weather was shown by the barometer and wind at the western outposts of the islands the storm was about 500 miles to the west-southwest of the Irish coast, and was advancing at the rate of nearly 50 miles an hour. The center of the disturbance struck the coast of Ireland at about 1 A. M. on the 15th, and by 8 A. M. was central over Ireland. The storm traversed the Irish Sea, and turned to the southeast over the western midlands and the southern counties of England, and its center remained over the British Isles about 34 hours, having traversed about 500 miles. It afterward crossed the English Channel into France, and subsequently again took a course to the northeastward, and finally broke up over Holland. In the center of the storm the barometer fell to 28.5 inches, but as far as the action of the barometer was concerned the principal feature of importance was the length of time that the readings remained low. At Greenwich the mercury was below 29 inches for 40 hours, and at Geldeston for 50 hours. The highest recorded hourly velocity of the wind was 78 miles from northwest; but during

gusts the velocity was probably equal to 120 miles an hour for a few moments. The force of the gale was very prolonged. The erratic course of the storm and its slow rate of travel while over the British Islands were attributed to the presence of a barrier of high barometer over northern Europe, and the attraction in a westerly direction that was produced by the great condensation and heavy rain in the rear of the storm.

Forests.—Methodical investigations of the influence of forests on climate have been made in Prussia, France, Switzerland, Italy, and Bavaria. It has been determined, as a general rule, that a forest may modify the normal climate of a country, by depressing the temperature of the air and the ground; by diminishing the amplitude of variations of temperature; and by augmenting the relative humidity. These causes naturally lead to a diminution of evaporation, but, according to Mr. Woeikof, the Russian meteorologist, the actual diminution is too great to be accounted for by all of them together; and he believes that the predominant factor in the phenomenon is the protection which the forest offers against the wind.

Observations made at Eberswalde every two hours, from the 15th to the 30th of June, on the daily range of temperature, showed that, at a station outside of the forest, the temperature continued to fall a little after midnight, and then took an ascensional movement, at first rapid, afterward slower, till the maximum, at about two o'clock in the afternoon. It then diminished, rapidly for a while, and then less rapidly, till midnight. The curve of temperatures in the forest station followed a similar course, but it reached, at midnight, a higher point in the scale than the curve of the outside station, and then met the latter curve at five o'clock in the morning. The difference in the maxima of the curves was considerably greater than that of the minima, showing that the refrigerating action of the forest in the daytime was stronger than its ameliorating effect upon the descent of the temperature at night. The maximum in the woods also took place from half an hour to an hour later than in the open plain.

Numerous comparative observations have shown that the amplitude of the range of the thermometer in the forest, as compared with that outside, is most reduced in the summer. In the summer, also, the influence of foliage woods is more marked than that of pine-forests, while in winter the latter exert the greater effect.

Removal of woods has been shown to make the movement of streams less regular; but, in regard to its effect on the fall of rain or snow, our observations are still too scanty to furnish the data for any rule. Observations made near Nancy indicate an augmentation of rains in wooded districts, which appears to be more marked in winter than in summer, notwithstanding

standing the less differences at that season in the temperature and humidity of wooded and open regions. Mr. Woeikof attributes this apparent anomaly to the resistance offered by woods to the movements of moist currents, which generally circulate at a less height in winter than in summer. A forest is thus a reservoir of moisture. Water escapes from it only when it rains heavily. Hence vegetation in forests is usually indifferent to the droughts which affect plants in open regions.

Mr. Woeikof's observations in 50 stations in Eastern Europe and Western Asia, between the 38th and 52d degrees of north latitude, indicate that the presence of forests has the effect of considerably diminishing the temperature of the neighboring region, even to the effect of neutralizing the difference in two places in the same latitude, as between an inland and an insular climate.

Dr. H. E. Hamberg has found that in the districts of Sweden which are open and cultivated a forest lowers the temperature of air and soil during evenings and clear nights, restricting the period of daily insulation, and thereby checks vegetation. The other influences of forests on temperature are either slight or elude the ordinary mode of observation by thermometers. Among the effects of this nature is the shelter afforded by forests against cold and violent winds. In certain cases they may also yield protection against the cold air or fog coming from districts in the vicinity which are visited by frost. On the one hand, a forest, where it is close at hand, offers mechanical protection against cold and violent winds. On the other hand, it does injury, either by retaining the solar heat required by crops, or by lowering the temperature of the soil during clear nights, and thus favoring the development of hoar-frosts. The influence of forests at a distance is not sensible.

Electricity.—According to Dr. Weinstein, observations of electric earth-currents, made in Berlin by the aid of the telegraph-wires, show a direction from northeast to southwest, while in England the direction is more from north to south, with a slight deviation toward the east, and in France from north to south, with an inclination toward the west. A regular daily variation exists. In the night the current was slight; from eight o'clock in the morning it regularly increased till it attained its maximum at noon; thence it sank rapidly till 4 P. M., whence it continued uniformly weak, not to return till the following morning. A course precisely analogous to that of the earth-current was manifested by the earth's magnetism.

To demonstrate the coincidence of the two phenomena, it was necessary to take for the purpose of comparison, not a single earth-magnetic element, but the earth's total magnetism. The earth's electricity and the earth's magnetism showed, moreover, in their regular daily course, their affinity, by the simultaneity with which their disturbances occurred. It

was so precise that, in one case, the distance between Berlin and Wilhelmshaven could be determined from the time when the earth's current made itself felt in Berlin, and the time when the magnetic disturbance occurred in Wilhelmshaven. The manifestation of it at distant places on the earth points to a cosmical cause. Thus, in August, 1885, when the emergence of an altogether unusual solar protuberance was observed in Paris a magnetic disturbance was registered in Petersburg, and a disturbance of the earth's current in Berlin. The earth's current and the earth's magnetism show further in common the periods of eleven years, coinciding with those of the solar spots. Collating the results of the observations which have been made regularly at the Meteorological Observatory in Odessa since the end of 1883, Mr. Klossofsky shows that there is an intimate relation between the variations of atmospheric pressure and those of electric potential.

Meteorology in New England.—The New England Meteorological Society is seeking to collect accurate records of earthquake-shocks, especially of the time at which the tremors are felt, to be handed over to the United States Geological Survey for its use. The chief questions which it is desired to have answered are: At what hour, minute, and second of standard time was the shock felt? How long did its perceptible motion continue? Was it accompanied by any unusual noise? Was more than one shock felt? Was it very light, light, moderate, strong, or severe?

The reports of the third annual meeting of the society, held October 19, showed that the number of members was 110, against 95 in 1885, and that reports were now received from between 140 and 150 observers, against 123 in the previous year. More attention had been devoted to improving the character of the observations than to increasing the number of stations. Special investigations had been undertaken, with the aid of grants from scientific funds. A report on thunder-storms in New England had been distributed to members, and a report on the distribution of rain in cyclonic storms was in press. In a paper on "Rainfall Statistics in the United States," Prof. J. D. Whitney gave reasons for considering the statements which had been made concerning the increase of rainfall on the Western plains as a result of the cultivation of the ground, not trustworthy. Mr. S. A. Eliot, in an essay on the "Relations of Forests to Rainfall and Water-Supply," showed that the opinion that forests increase and clearings decrease the rainfall was based chiefly on the diminution of stream-flow in cleared districts; but this might be due to increased evaporation rather than to increased rainfall; and the effect of forests in retarding evaporation was not doubted.

The Appalachian Mountain Club has decided to establish a limited number of meteorologi-

cal stations in the White mountain region, which will be equipped with suitable instruments, and the records of which will be turned over to the New England Meteorological Society for discussion. Of such stations reports were made in 1886 from Berlin Mills, Quincy, Shelburne, Stratford, and West Milan, N. H. The United States Signal Service has also a station on Mount Washington.

Fading out of the Red Sunsets.—Prof. A. Ricco, of the observatory at Palermo, in a communication to the Accademia dei Lincei, on the 6th of October, 1886, remarked that the normal conditions in the matter of the red sunsets had at that time been resumed. The means of all the observations, taken from the beginning of the phenomena to 1885, indicated a gradual diminution of intensity. Calling the maximum, on the 3d of December, 1883, as 10, the mean intensity from December, 1883, to April, 1884, was 5·6; and from December, 1885, to April, 1886, it fell to 2·2. Bishop's Ring had been invisible at Palermo, and also, according to Prof. Tacchini, at Rome, for some time. M. Ricco had perceived it, but very faint, on the 15th of May; and its visibility had since diminished. The author could not, however, say that it had wholly disappeared, for the clearness of the sky goes for a good deal in his observations, and he had been able to perceive it, under usually favorable circumstances, as late as the 19th of August. The eruption of Ferdinandea Island in 1831, and the recent eruption of Etna, have contributed important facts to the study of the red sunsets and the blue sun. The mass of vapors thrown up by Ferdinandea was enormous, and comparable to that which was launched from Krakatoa; it formed a column over the volcano at least fifteen miles high. But no ashes were carried away by the winds from Ferdinandea, because the sea-water rushed into the crater after each eruption; and this explains the formation of such masses of vapor. But, although there were no ashes the phenomena of blue or green suns and red twilights were observed over a great part of Europe. Etna, in its recent eruption, sent out a column of vapor which, on the morning of the 21st of May, was about eight, and in the afternoon of the 24th, fourteen kilometres high. Furthermore, ashes were thrown out, which fell like a fine rain, at Reggio and at Palermo. For several days after the eruption, the sun appeared rose-colored, but not green or blue. The coloration was produced by the volcanic dust in suspension, which intercepted the rays of shorter wave-lengths. The red twilights that were observed were, however, but little marked. This may be attributed to the lack of vapor thrown out by the volcano, contrary to what took place at Ferdinandea and Krakatoa, which were in immediate juxtaposition to the sea. The author believes that we may regard the red twilights and blue or green suns following grand volcanic eruptions as caused, not by the ashes, but by the vapors.

International Meteorological Congress.—An International Meteorological Congress met at Biarritz, October 4, 1886, and was attended by 1,100 members, among whom some eleven or twelve countries were represented. Dr. Durand-Faudel was chosen president of the Congress, and delivered the opening address. Numerous papers were presented; among them several relating to the climates of the bathing and thermal stations of the south of France. M. Teisserenc de Bort delivered an address on weather-prediction, in which he estimated how far science had advanced in the effort to fix the laws by which the development and changes of atmospheric phenomena are governed. It seems to be established that the most important factor in determining the conditions of weather is the distribution of centers of barometric depressions, and that these are preponderantly controlled by conditions of temperature. Hence are deduced as fundamental rules: 1. That whenever a region of considerable extent presents an excess of temperature either absolute or relatively to the temperature of other points in the same latitude, there is a tendency to the formation of a barometric minimum in that region, which is manifested either by the existence of a close minimum, or by the flexion of the isobars; and, 2. Barometric maxima, points whence air escapes in all directions, tend to be established in the vicinity of regions where the temperature is low, either absolutely or relatively to the latitude. By the operation of these rules, winds move from zones of high pressure toward the points where the barometer is low. Hence, also, the points of relative cold or high pressure, and of relative heat or low pressure, have been designated grand centers of atmospheric action. The shifting of these centers, which is always taking place to a certain extent, and occasionally occurs in a marked degree, may be regarded as the occasion of those anomalies of season which are sometimes remarked. The continued study of weather-prediction, then, involves a more complete study of the general circulation of the atmosphere, in order to ascertain the causes of the normal repartition of the centers of action; the determination of the effects of displacement of the centers on the meteorological elements—wind, temperature, rain, moisture, and cloudiness—and the discovery of the causes of the displacements of the centers of high and low pressures from their normal positions. Another series of abnormal phenomena, which seem to be of regular occurrence, like the May frosts and the Indian summer, invite study, the object of which should be to ascertain whether they are really periodical, and whether they are connected with some direct solar action or with extra-terrestrial phenomena of some other period than that of the earth. The author is hopeful that with the extension and the complete systematization of weather observations,

means may be found for reaching a solution of all these questions.

High Meteorological Stations.—Dr. Breitenlohrer gives, in the "Mittheilungen" of the Vienna Geographical Society, the following list of elevated meteorological stations in Europe, with their heights above the sea in metres: Italy, Monte Cimone, Apennines, 2,162; Etna, Sicily, 2,900; France, Puy-de-Dôme, Auvergne, 1,453; Pic de l'Aiguel, Cévennes, 1,567; Mont Ventoux, Cottian Alps, 1,960; Pic du Midi, Central Pyrenees, 2,877; Switzerland, Säntis, Appenzell, 2,500; Great Britain, Ben Nevis, 1,418; Germany, Brocken, Harz, 1,141; Wendelstein, South Bavaria, 1,860; Austria, Schafberg, near Ischl, 1,776; Hoch-Obir, Carinthia, 2,047; Sonnenblick, Salzburg, 3,103.

METHODISTS. I. Methodist Episcopal Church.—The following is the summary of the statistics of the Methodist Episcopal Church (including its foreign missions) as they are given in the "Minutes of the Annual Conferences" for 1886:

Number of traveling preachers.....	12,075
Number of preachers on trial.....	1,562
Number of local preachers.....	12,813
Number of members (in full connection).....	1,768,229
Number of probationers.....	222,148
Total of members and probationers.....	1,990,377
Number of children baptized during the year.....	67,795
Number of adults baptized.....	98,844
Number of churches.....	20,263
Number of parsonages.....	7,388
Probable value of church property.....	\$89,412,442
Number of Sunday-schools.....	23,088
Number of officers and teachers in the same.....	259,237
Number of Sunday-school pupils.....	1,901,007

AMOUNT OF BENEVOLENT COLLECTIONS:

For missions.....	\$823,056
For church extension.....	105,944
For the Sunday-school Union	18,954
For the Tract Society.....	17,444
For the Freedmen's Aid Society.....	78,509
For education.....	98,146
For the American Bible Society.....	28,940
For the Woman's Foreign Missionary Society.....	145,518
For the Woman's Home Missionary Society.....	85,856

A total increase is shown for the year of 100,047 in the number of members and probationers.

Church Extension.—The General Committee of Church Extension met in Philadelphia, November 11. The report of the Board of Church Extension showed that the year had begun with a balance in the treasury of \$49,781. The receipts had been: On general account, \$143,574; on loan-fund account, \$82,910; making altogether \$226,484; giving a total for use of \$276,266, or \$11,521 more than the available resources of the previous year. The conference collections had been \$99,446, a gain of \$7,893 over those of the preceding year. The disbursements had been: On general account, \$143,542; on loan-fund account, \$86,997; giving a total of \$230,539; and leaving a balance in the treasury on November 1 of \$45,726. Additional grants had been made on conditions to be complied with, including gifts and loans, of \$73,990; and applications were on file for gifts and loans to the amount of \$18,086. The appropriations and the requests from the annual conferences for the ensuing year were adjusted

on the basis of raising and expending the sum of \$204,150. An "emergency fund" of \$6,000 was constituted, which the Board of Church Extension was authorized to use in gifts to churches costing more than \$10,000. A resolution was passed deprecating the solicitation of money for needy churches; and conferences and official boards were requested not to authorize the action of soliciting agents beyond the limits of their own conferences.

Freedmen's Aid Society.—The receipts of the Freedmen's Aid Society for the year ending June 30, 1886, were returned at \$165,228, showing an increase of \$21,762 over the receipts of the previous year. The total amount expended by the society in the work of Christian education in the South during nineteen years had been \$1,737,305, of which \$1,500,000 had been expended in schools among the colored people, and \$237,205 in school-work among the whites. The society has 11 chartered institutions, 7 of which are devoted to the training of colored pupils, and 21 others, with 174 teachers and 5,526 pupils. It has under its care 12 institutions for white students, with 61 teachers and 1,740 pupils. It had established two schools among the whites, at Little Rock, Ark., and Chattanooga, Tenn. All the other schools among the whites in the South had been established and largely maintained by the people themselves. The society had aided these schools, when they had been embarrassed, in the erection of buildings and support of teachers, as its funds would allow, without embarrassment to its work among the colored people.

Missionary Society.—The General Missionary Committee of the Methodist Episcopal Church met in New York city, November 3. The treasurer reported that the total amount of collections for the year had been \$992,128; of which \$836,592 had been obtained through the conferences, \$133,958 from legacies, and \$21,578 in the form of miscellaneous receipts. The total amount was greater by \$165,300 than the amount of the receipts for the previous year. Appropriations were made for carrying on the missions in their several fields of work during the ensuing year, as follow:

I. FOREIGN MISSIONS:	
Africa (Liberia and the interior):.....	\$11,000
South America	43,000
China	106,272
Germany.....	35,180
Switzerland.....	11,440
Scandinavia	75,835
India.....	73,202
South India.....	85,000
Bulgaria and Turkey.....	16,729
Italy.....	46,435
Mexico.....	49,477
Japan.....	50,586
Corea.....	17,022
Total for foreign missions.....	\$570,958

(A conditional appropriation, contingent on a gift of \$3,000, was made for a mission-press in Calcutta.)

II. MISSIONS IN THE UNITED STATES NOT IN ANNUAL CONFERENCES, TO BE ADMINISTERED AS FOREIGN MISSIONS (including stations in Arizona, the Black Hills, Indian Territory, Montana, New Mexico, and Utah).....	\$73,700
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III. DOMESTIC MISSIONS:

Welsh.....	400
Scandinavian.....	86,450
German.....	51,400
French.....	3,200
Chinese.....	11,150
Japanese.....	5,000
American Indian.....	4,950
Bohemian and Hungarian.....	2,500
English-speaking.....	245,100

Total domestic missions.....	\$860,150
IV. MISCELLANEOUS APPROPRIATIONS.....	\$8,000

Total.....	\$1,059,800
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The statistics of the missions, according to the latest published report (for 1885, published in March, 1886), are as follow:

Foreign Missions.—Number of foreign missionaries, 116; of assistant missionaries, 72; of foreign teachers, 16; of missionaries of the Woman's Foreign Missionary Society, 68; of native ordained preachers, 309; of other native laborers, 984; of members, 36,950; of probationers, 12,625; of native adherents, 33,363; average attendance on Sunday worship, 55,431; number of conversions reported during the year, 2,777; baptisms, 1,532 of adults and 2,233 of children; number of pupils, in theological schools, 136; in high-schools, 1,508; in day-schools, 16,327; in Sunday-schools, 67,069.

In domestic and territorial missions: Number of missionaries, 2,508; of assistant missionaries, 2,397, with 81 other assistants and teachers; of local preachers, 3,522; of members, 239,589; of probationers, 39,130.

The receipts of the Woman's Foreign Missionary Society for the year ending Oct. 1, 1886, were \$167,098. The society reported at the close of 1886: Missionaries in the field, 57; assistants, 32; Bible women and medical women, 163; children in orphanages, 395; scholarships, 479; day-schools, 210; zeananas visited, 1,972; women under instruction, 4,169. Its work is carried on in connection with the missions of the Missionary Society of the Methodist Episcopal Church, in Japan, China, India, Bulgaria, Italy, South America, and Mexico.

The receipts of the Woman's Home Missionary Society for the year ending Oct. 15, 1886, were \$37,182 in cash, and \$20,000 in supplies. Effective organization was reported at the meeting in 1885, in 43 conferences.

II. Methodist Episcopal Church, South.—Statistical reports, made to the General Conference in May showed the number of ministers in this Church to be 4,406; of local preachers, 5,943; and of members, 990,904.

The General Conference of the Methodist Episcopal Church, South, met in Richmond, Va., May 5. The bishops presented their quadrennial address, reviewing the condition and growth of the Church during the past four years. It represented that during that interval the number of members had increased from 860,717 to 996,994; of itinerant ministers from 4,011 to 4,466; and of local preachers from 5,869 to 5,943. In the missions, which have been established in Mexico, Brazil, and China, the expenditure has exceeded the income, though

the latter had increased by more than \$600,000. Among the Indian tribes having a total population of 75,000 souls, the Church had 12,000 members allotted among five presiding elders' districts and forty-five pastoral charges, with 121 local preachers, most of whom are of the Indian race. Six academies of a high grade, for the education of Indian children, were sustained. The efforts to restore the Publishing-House from its condition of financial embarrassment had been attended with success. The debt of nearly \$300,000 had been reduced to \$80,500 in 4-per-cent. bonds on the house. In the effort to raise \$2,000,000 for centennial offerings commemorative of the one hundredth anniversary of the organization of the Methodist Episcopal General Conference, \$1,382,771 had been obtained; but nearly the whole of this had been given for local purposes, such as the building and repairing of churches and the paying of existing debts, so that not much more than \$500,000 were realized for connectional purposes. Upon the proposal referred by the preceding General Conference to the Annual Conferences to change the name of the Church to "the Methodist Episcopal Church in America," the vote had resulted in 91 in favor of the change and 3,415 against it. On this subject the bishops said:

"It is to be hoped that a corporate name, which was first introduced by Bishop Paine and adopted into the report of the Committee of Nine in the General Conference of 1844; which was further recognized in the convention at Louisville in 1845, and in the formation of the first Southern General Conference in 1846; which is the title by which all our law-suits for the recovery of property was known, and in favor of which the decree of the Supreme Court has been; the title and name by which we were known through the ample and deep experience of the war; the name which was reaffirmed by a constitutional vote of the Church in 1866 to 1867, and by which the status of our church was recognized by the Cape May Commission in 1876, and about which our whole domestic and foreign missionary work has clustered—will be accepted, fully and forever, as the primal and final designation of our beloved Methodism."

A paper was presented reciting that whereas the Methodist Episcopal Church and the Methodist Episcopal Church, South, "have a common origin, a common history, teach the same doctrines, and have virtually the same church polity; and, whereas, the only end and aim of both churches should be to spread Scripture holiness over these lands and promote the glory of God and the salvation of men; and, whereas, the provisions of the Cape May Commission [see "Annual Cyclopaedia" for 1876] have been wholly disregarded": therefore it asked that the General Conference elect a commission of seven to meet a similar commission whose appointment should be requested of the General Conference of the Methodist Episco-

pal Church, to constitute a joint commission charged with the duty of devising a plan of Methodist comity and federation, "whereby there shall be avoided, as far as possible, the sin of two Methodisms occupying the same territory, either at home or in foreign fields." It also asked for the appointment of committees to prepare a common hymnal for Methodism. This paper was referred to a committee of one from each annual conference, which reported adversely to any measure looking to the unification of Methodism in foreign fields and in small towns and villages at home. A proposition was then adopted by a small majority empowering the bishops and Board of Missions to ask that a commission to consider with them the question of comity be appointed by the next General Conference of the Methodist Episcopal Church. Four of the bishops of the Church had died since the preceding General Conference: Bishop Paine in 1882, at the age of eighty-four; Bishop Kavanagh in 1884, in his eighty-second year; Bishop Pierce in the same year, in his seventy-third year; and Bishop Parker in 1885, in his fifty-sixth year. Four new bishops were elected: W. W. Duncan, D. D., of Virginia; C. B. Galloway, D. D., of Mississippi; Eugene R. Hendrix, D. D., of Missouri; and Joseph S. Key, D. D., of Georgia. A memorial asking that the appointment of evangelists be permitted was denied. An amendment was made to the disciplinary rule under which the selling of intoxicating liquors was classed among misdemeanors, declaring it to be an immorality. The Publishing-House was authorized to issue a series of tracts and leaflets on the evils of intemperance. The law of church trials was amended so as greatly to extend the rights of the accused to challenge for cause. It was decided that a traveling preacher who may have been located by his annual conference for inefficiency or want of adaptation to the itinerancy, shall not have the right of appeal to the General Conference. On the question of divorce the Conference decided that no minister of the Church shall solemnize the rite of marriage between parties when one or both of them are divorced from a wife or husband still living, provided that the inhibition shall not apply to the innocent party to a divorce obtained on scriptural ground. In view of the great demand for intelligent preachers among the colored people of the South, the bishops were authorized, when requested to do so by an annual conference, to appoint a preacher to travel within the bounds of the Conference and organize churches in connection with the Colored Methodist Episcopal Church in America. The educational report recommended that each conference should have at least one academy or seminary directly under its supervision, and that several conferences should unite in the support of a university or college; that institutions of a high grade should not be too much multiplied; and that Bible-schools should be established everywhere. For providing a place

for holding the General Conference, a committee was appointed to select from the places inviting the Conference and negotiate for railroad fares and hotel rates, and to report through the Church papers at its discretion. The "Quarterly Review," hitherto published as a private enterprise, was put under the care of the Publishing-House. The Conference directed that the decisions of the bishops on legal questions be published in book-form.

III. Methodist Church in Canada.—The statistical reports of this Church, made to the General Conference in September, give the number of itinerant ministers as 1,610, of local preachers 2,682, and of members 199,479.

The General Conference of the Methodist Church in Canada met in Toronto, September 1. It was the first General Conference of this Church since the consummation of the union of the four Methodist denominations three years before. Included within the organization of the body are the Methodist churches of the Dominion of Canada, Newfoundland, and the Bermuda Islands, with missions among the Indians of the Northwest and the Pacific coast and in the empire of Japan. In the reports made to the General Conference, the most beneficial results were claimed to have accrued from the union. An increase of 20,000 members had taken place in the first year, and a further increase of 10,000 members had occurred in the second year after the completion of the movement. The missionary income had been augmented by \$10,000. The missions among the Indians had been of salutary influence in preserving the loyalty of that people. Not one of the Methodist Indians, it was said, had taken part in the outbreak by which the Western Territories of the Dominion had been disturbed. The most important subject considered by the Conference was the proposition for the federation of the Methodist Victoria University at Cobourg with the Provincial University of Ontario at Toronto. A large quantity of land had been set apart in the last century "for the support of a Protestant clergy," and had afterward been sequestered and applied to the endowment of King's College University. This institution being under the control of the Anglican clergy and requiring religious tests from its students, the Presbyterians and Methodists established universities of their own. Since then King's College had been converted into the Provincial University of Toronto and opened without tests to students of all denominations; and the Minister of Education, of Toronto, had conferred with the heads of the Presbyterian and Methodist institutions and submitted to them a plan for the affiliation of all with the Provincial University, which alone should confer degrees. The Presbyterian Queen's College and the Anglican Trinity College had declined to come into this arrangement, although the denominations they represented, with the Baptists and Roman Catholics, had grouped their theological insti-

tutions around the Provincial University. The proposition for federation was approved, after a debate of three days in the Conference, by a vote of 138 to 118. The perfection of the scheme requires the collection of a fund of \$450,000 for the erection of new buildings and the better equipment of Victoria College, and toward this amount \$90,000 were raised in the Conference. The question arose as to whether one General Superintendent or two officers of that name, as was contemplated but not stipulated for at the time of the consummation of the union, should be appointed. The Conference decided in favor of two, and General Superintendent Carman was re-elected for the term of eight years, and the Rev. Dr. Williams, already serving in place of Superintendent Rice, deceased, was chosen for the term of four years. A Superintendent of Missions for the Northwest Territories was also determined upon and appointed. A proposition to extend the term of the pastorate to four years was defeated. A plan for the creation of a consolidated treasurership of all the funds of the Church, with a local advisory committee, was referred to a committee for consideration and report to the next General Conference. An arrangement was approved by which the Methodist Church of Canada and the Methodist Episcopal Church in the United States shall co-operate in the maintenance of a theological college for the training of native Japanese ministers in Tokio, Japan. A plan was provided whereby Methodist and Presbyterian missions occupying the same territory, under conditions in which they may be liable to be brought into conflict or rivalry, may be consolidated by mutual agreement and put in the charge of the denomination whose church may be locally the stronger, and a commission was appointed to carry out the plan where it may appear practicable. A plan for Church extension in the Northwest was adopted. The Conference recommended that non-alcoholic wine be used in the sacrament of the Lord's Supper; that juvenile temperance societies be organized in all the congregations; and that a day be set apart in each year, to be known as Temperance Sunday, which should be entirely devoted to temperance questions. It was mentioned in the reports of the Sunday-schools that more than 84,000 of the pupils were pledged abstainers.

IV. Wesleyan Connection.—The following is a summary of the statistics of the Wesleyan (British) and affiliated Conferences as reported to the Conference at London in July, 1886:

JURISDICTIONS.	Itinerant ministers.	Local preachers.	Members.
In Great Britain.....	1,970	15,000	440,915
In missions.....	841	1,555	88,108
Irish Wesleyan Conference.....	226	1,408	25,259
French Wesleyan Conference.....	33	92	1,668
Australasian Conferences.....	401	8,422	68,628
South African Conference.....	180	1,786	82,165
West Indian Conferences.....	85	2,510	45,154
Total.....	3,246	26,082	649,110

The anniversary of the Wesleyan Missionary Society was held in London, May 3. Mr. W. Shepherd Allen, M. P., presided. The receipts of the society for the year had been £138,165, while the expenditures had been £131,364 for general purposes, and £2,469 on account of special missions.

The Wesleyan Conference met in the City Road Chapel, London, July 20. The Rev. Robert Newton Young, D. D., was chosen president. One of the most important subjects considered was a proposition for the establishment of a mission in Western London, with reference to which a committee had been appointed at a previous conference. The presentation of a favorable report by this committee was followed by a debate upon the expediency and propriety of undertaking a work of evangelization in that quarter of the city, concerning which considerable differences of opinion were expressed. The project was finally sanctioned by the Conference, the resolution to that effect being carried by a large majority of the votes. The Committee of the Mission was empowered to select ministers for appointment in its work, subject to the decision of the Conference. It was understood that the Rev. H. P. Hughes and the Rev. Mark Guy Pearson would be designated to conduct the mission. A committee report was presented on "Village Methodism," or relative to the openings offered for and the prospects of the success of evangelistic work under the auspices of the Conference in the agricultural villages, to which an increased degree of importance has been attached since the recent extensions of the electoral franchise. The report expressed satisfaction with the general results of the committee's investigation, and cited as a special matter for gratulation that 330 more villages were occupied by Methodist preachers and evangelists and other laborers than twenty-five years ago. It recommended that the best efforts of the Connection be put forth to render local preachers, exhorters, and class-leaders thoroughly efficient, and to increase their numbers; that they should vigorously engage in aggressive work, and that lay agents should be employed and new village circuits formed. A measure was proposed for a limitation of the term during which ministers may be allowed to remain in departmental office. It was to the effect that, with the exception of the editor and the tutors in the theological institutions, no minister shall be allowed to hold a departmental office for more than nine years; and that no minister, having served the Connection for a term of nine years in any department, shall be eligible for election to another department without having previously traveled three years in a circuit. This was amended by the adoption of a provision that, when an incumbent shall have completed six years of his appointment, the committee concerned in the case should be required to make the nomination of three ministers, of whom the Conference should be requested to appoint

one, the retiring minister to be eligible to be one of the three, and to be elected. The rule as amended was also made applicable to the offices which were excepted in the original resolution. A question arose during the discussion of foreign missionary work as to the expediency of continuing the missions in Roman Catholic countries and the colonies. It was pleaded in support of the Continental missions that some of the results of Methodist influence might, perhaps, be seen to an extent which no one could determine in the modern revival of evangelical religion in France, and that no mission was dearer to the people of the Church than the one in Italy; while from the colonial missionary work had sprung the Methodist Churches of America, Canada, and Australasia; with a South African Conference in existence, the missions within the range of which would soon cost the parent committee nothing, while the West Indies, under the new constitution of their Conference would soon become less burdensome. The approval of the Conference was given to the efforts made by the general committee to secure an increase in the income of the Missionary Society.

The subject of the reunion of the Wesleyan Connection and of the Methodist New Connection, which separated from the former body in 1797, was brought under discussion in November through the publication of a correspondence between the Rev. H. P. Hughes and four ex-Presidents of the Wesleyan Conference. Mr. Hughes wrote to each of the ex-presidents—viz., the Rev. William Arthur, the Rev. A. McAuley, the Rev. E. E. Jenkins, and the Rev. Charles Garrett—propounding to each of them the question, “Ought we to propose reunion with the Methodist New Connection?” The persons addressed all responded favorably to the idea of reunion, saying that they had long hoped that it might be brought about. Mr. Arthur had talked with the late Dr. Cooke, of the New Connection, upon the subject forty years before, and would be “friendly to all action that is not forced or driven forward.” Mr. McAuley pointed to the unification of Methodism in Ireland as an example to be imitated. Mr. Jenkins, while he thought that the Methodist “Ecumenical Conference” of 1881 might have opened the way, if not to actual incorporation, to a unity which should make Methodists work together where they were now working without concert, referred to some difficulties in the way. Mr. Garrett related an incident showing how the divisions of the Churches, which were really “one in name, one in doctrine, and one in heart,” led to waste of energy by splitting what might, in the case of a local church, be a strong body if united, into a number of weak, ineffective, and often conflicting organizations. Mr. Hughes having received the answers of the four ex-presidents, addressed a letter to all the ministers and a number of laymen of the connection, asking for their opinions on the subject.

The proposition of Mr. Hughes and the overtures of the four ex-Presidents of the Wesleyan Conference were seconded in the Methodist New Connection, of which seven ex-Presidents of the Conference had at the beginning of December expressed their approval of the movement and desired that it might succeed.

V. Methodist New Connection.—The summary of the statistics of this Church, as presented to the Conference in June, showed that the number of chapels was 514; number of societies, 479; of circuit preachers, 186; of local preachers, 1,242; of members, 29,914; of probationers, 4,440; of Sunday-schools, 459, with 11,135 teachers and 83,704 pupils. Three more societies were recorded than in the previous year, and the number of members had increased by 587.

The Conference of the Methodist New Connection met at Newcastle-on-Tyne, June 14. The Rev. William Townsend was chosen president. Reports were made of the condition of the funds and societies of the Connection. The Book-Room returned an income of £3,078, with profits amounting to £180. The income of the Paternal fund, the purpose of which is to assist in making the incomes of ministers proportionate to the size of their families, was £3,144. The Temperance and Band of Hope Union included 245 bands with 31,538 members, and had published 328,437 copies of tracts, etc., since it was organized. Ranmoor College, Sheffield, had an endowment fund of £7,331. The total amount of subscriptions to the Aid and Extension fund, which was to be completed in the middle of the financial year, had been, to the date of making the report, £10,998. The income for the Benevolent fund (for aged ministers and their widows) had been £3,255.

The receipts for the Mission funds (including both home and foreign missions), apart from sums raised and expended in the mission-fields, had been £6,450, and the total expenditure £5,741. The Connection had in its foreign mission, in China, 7 English missionaries, 60 native preachers, and about 1,351 Chinese converts. A recently established mission in the Isle of Man was adopted by the Conference. A report was approved recommending that public services (of worship) should be made as evangelistic as possible, without adopting means that would tend to lessen the faith of the people in the saving power of the ordinary means of grace; and that special services should be held at intervals in all the circuits, in order to guard against any tendency to formalism. The annual address to the ministers, members, and friends of the Connection contained a passage bearing upon the subject of Methodist union with reference to the indications of a nearer approximation to each other of the various Methodist bodies, and of the mutual respect and love with which they now regarded one another. The paper took notice of the fact, as alleged, that every Methodist body

which had been called into existence during the present century in England, America, and Australia, had adopted in substance, if not in form, the distinctive principles of the New Connection. The Wesleyan Connection also, had been constrained, by the growth and power of liberal principles, to make very great changes in its polity and administration—changes which had swept away some of the elements of difference between the two bodies, and greatly reduced the magnitude and practical force of others.

VI. Primitive Methodist Church.—The statistical reports of this Church, as presented to the Conference in June, give the following footings: Number of church-members, 191,641; of regular hearers, 485,136; of ministers, 1,043; of local preachers, 16,120; of class-leaders, 10,723; of Connectional chapels, 4,805; of other chapels, 1,545; value of church property, \$3,017,647; number of Sunday-schools, 3,753, with 58,121 teachers, and 386,570 pupils.

The forty-third annual meeting of the Primitive Methodist Missionary Society, was held in London, May 11. Mr. H. Spicer, M. P., presided. The receipts of the society for the year had been £22,250, and the expenditures £18,905, but the apparent balance was probably already covered by prospective payments for current expenses. More than 1,400 cases of conversion had been reported by the missionaries in the home department.

The Primitive Methodist Conference met in its sixty-seventh annual session at Derby, June 9. The Rev. John Atkinson was chosen president. The report of the Metropolitan Chapel fund showed that during the twenty-one years of its existence it had assisted in the erection of 78 chapels and schools in London. The Book-Room had been able to give £3,300 out of its profits to the Superannuated Ministers', Widows', and Orphans' fund. The income of the latter fund had amounted to £7,570, and it had on its books the names of 255 annuitants. The General Chapel fund reported that during the last nine years it had assisted trustees to reduce their liabilities to the amount of £31,000. The most important measure perfected by the Conference was one for the establishment of a stationing committee, to consist of one minister and one layman from each home district, and the secretaries of the General Committee and of the Missionary Committee. Its business will be to arrange the appointments of unstationed ministers and provide for unsupplied circuits; and it shall not, except by special instruction from the Conference, interfere with arrangements previously made between ministers and stations.

VII. United Methodist Free Churches.—The following is a summary of the statistics of this body, which were presented to the Annual Assembly in July: Number of itinerant ministers, 380; of supernumerary ministers, 41; of local preachers, 3,268; of leaders, 4,077; of members in society, 76,500; of members on trial,

7,549; of chapels, 1,358; of other preaching-rooms, 222; of Sunday-schools, 1,361, with 26,664 teachers and 198,196 pupils.

The Annual Assembly of the United Methodist Free churches was held in Sheffield, beginning July 13. The Rev. Thomas Sherwood was chosen president. The committee of the Commemorative fund, which had been established three years before, in celebration of the formation of the body, and to add to the resources of the Connectional and local fund, reported that £32,400 had been promised, of which £18,082 had been paid in three installments; two other installments had yet to be paid. The capital of the Superannuation fund had been increased by £1,876, and now amounted to £33,432; annuities had been paid to the amount of £2,050; and the ministers' subscriptions to the fund amounted to £1,080. The Children's fund, which is applied to the benefit of the children of all itinerant ministers between the third and seventeenth years of their age, and is maintained by a levy of ten pence a year on the members of the Church, had 470 children on its list of beneficiaries. The capital of the Sunday-school fund was £1,420; and of the local preachers' fund, £1,710. The sales of the Book-Room had amounted to £5,763, and the profits of the concern to £462. These were appropriated among the several benevolent schemes entitled to share in them. The chapel committee reported one hundred cases of erection and enlargement of chapels, school-rooms, and ministers' houses, at a total cost of £26,523; toward which £12,395 had been raised; the sum of £25,875 had been raised for the reduction of chapel debt, making the entire amount raised in these two branches of the Connectional work £38,964. Favorable reports were made of the condition of Asheville College and of the theological institute. The President of the Assembly was authorized to sign a petition in favor of the closing on Sunday of places where intoxicating drinks are sold. Resolutions were adopted, urging modifications in the marriage laws so as to give Dissenting clergymen and chapels equal rights and position in the solemnization of marriage with those of the Established Church; and asking for the substitution of international arbitration for war.

VIII. Bible Christians.—The Annual Conference of the Bible Christian Connection met in Southsea, July 27. The Rev. Alexander Trenge was chosen president. The statistical reports showed an increase of more than 500 members. The receipts of the Chapel fund had been £23,461; debts had been paid to the amount of £4,420. A favorable report was presented of the condition and standard of scholarship of Shebbear College. Two candidates offered themselves to enter the service of the mission in China, which had been established the previous year. A visiting minister from Canada, where the Provincial Con-

tion has been united with the Methodist Church of Canada, represented that the results of the union, in which the principles of the Bible Christian Connection were conserved, had been beneficial. The undertaking by the South Australian Conference to build a college, to be called Way College, was confirmed. The churches in Victoria were authorized to form a conference. Provision was made for the occasional assembly of a "Pan-Australian" Conference. The constitution of the examining and of the stationing committee was modified by adding two laymen to each of them.

The annual meeting of the Bible Christian Missionary Society was held May 4. The receipts of the society for the year had been £6,040, and the disbursements £6,713. An increase of 436 approved members was returned. Two missionaries had been sent out to labor in China under the auspices of the China Inland Mission. The sum of £796 had been appropriated for the new China mission, and £446 had been contributed for that object.

MEXICO, a confederated republic of North America. Area, 748,144 square miles; population in 1883, 10,447,974, of whom 1,985,117 were white natives and European and American residents, constituting 19 per cent.; 3,970,234; or 38 per cent., pure Indians, while the remaining 43 per cent. were half-breeds.

The cities with a population exceeding 7,000 inhabitants were: Ures, 8,000; Chihuahua, 12,000; Saltillo, 26,000; Monterey, 16,000; Vera Cruz, 24,000; San Juan Bautista, 8,000; Campeche, 16,000; Mérida, 40,000; Guadalajara, 80,000; Colima, 26,251; Morelia, 24,000; Oajaca, 28,000; San Cristóbal, 10,500; Durango, 20,000; Zacatecas, 30,000; Aguascalientes, 22,000; San Luis Potosí, 35,000; Guanajuato, 52,000; Querétaro, 30,000; Pachuca, 12,000; Toluca, 12,000; Puebla, 75,000; and Mexico, the capital, 300,000.

Government.—The President is Don Porfirio Diaz, elected for four years, beginning Dec. 1, 1884. His Cabinet is composed of the following ministers: Foreign Relations, Señor Ignacio Mariscal; War, Gen. Pedro Hinojosa; Public Works, Gen. Pacheco; Justice, Señor Joaquin Baranda; Finance, Señor Manuel Dublan; Interior, Señor Manuel Romero Rubio. The Minister to the United States is Señor M. Romero; the United States Minister to Mexico is C. Manning; the American Consul-General at Mexico is Porech; the Consul at Paso del Norte is J. H. Brigham; and the Mexican Consul-General at New York, Señor J. N. Navarro.

Army and Navy.—The army of the republic consists of 10,500 infantry, with 722 officers; divided into 19 battalions; 9 regiments of cavalry, 4,176 strong, with 518 officers; 5 batteries of artillery, 1,017 strong, with 180 officers; 71 gendarmes, with 22 officers, doing coast service; 9 corps, 1,692 strong, of municipal gendarmes, with 150 officers; an invalid corps, 280 strong, with 19 officers, and the

soldiery of the military colonies, 1,158 strong, with 130 officers; together, 18,894 men and 1,741 officers. The navy consists of 4 gunboats.

Finance.—The national indebtedness, home and foreign, amounts to \$125,000,000. At the time the decree of June 22, 1885, was issued, the budget for 1885-'86 estimated the outlay at \$38,903,348, and, adding thereto the deficits of three years up to June 30, 1885 (\$24,043,600), there had to be provided for the sum of \$62,946,948; whereas the income was estimated not to exceed \$27,000,000, leaving a deficiency of \$35,946,948. The provisions of the decree of June 22 changed the budget estimate for 1885-'86 to the following statement of revenue and expenditure: Outlays, less \$2,221,545; discount from salaries, \$20,278,455, and adding thereto \$24,043,600 of deficit to June 30, 1885, there remained \$44,322,055 to be provided for. The income being estimated at \$27,000,000, and the 6-per-cent. bond issue decreed, amounting to \$25,000,000, there were thus resources at the disposal of the treasury, prospectively, reaching \$52,000,000, leaving a surplus of \$7,677,945.

Early in 1886 the Government issued a decree establishing in the city of Mexico a bureau for the registry, acknowledgment, liquidation, and conversion of all national indebtedness and claims against the exchequer. Simultaneously, a financial agency was opened in London, under the temporary management of Don Francisco Z. Mena, the Mexican minister at Berlin; Don Carlos Mexia, Mexican consul in Liverpool, to be his secretary.

The new 8-per-cent. consols for the conversion of the Mexican debt are to be issued to the amount of \$150,000,000, to be bonds payable to bearer in national coin, and to be taken in payment in full for government lands or any other Federal properties—unpaid coupons to be taken in payment to the amount of 5 per cent. in the settlement of all Federal taxes for the fiscal year next following. As a direct sequel of this decree, the financial agent in London made, on June 23, an arrangement with the council of foreign bond-holders, approved by the committee of Mexican bond-holders, in accordance with which the $\frac{1}{2}$ per cent. interest due foreign bond-holders for the six months ended June 30, 1886, was paid on the day following by Messrs. Glyn, Mills, Currie & Co., London; the unpaid coupons of the 1851 loan were settled for by an issue payable between Jan. 1, 1887, and Dec. 31, 1890. In exchange for the 1864 loan and overdue coupons, holders received £50 3 per cent. new bonds for every £100, all new coupons to date from Jan. 1, 1887. The new consols are to bear interest as follows: 1886, 1 per cent.; 1887, $\frac{1}{2}$ per cent.; 1888, 2 per cent.; 1889, $\frac{3}{4}$ per cent.; and dating from January, 1890, 3 per cent., payable half-yearly. At a general meeting of bond-holders, held in London on June 30, the settlement was accepted.

Investment of English Capital.—There was in-

vested of English capital: In railways, \$56,500,000; public debt, \$56,000,000; banks and companies, \$20,000,000; plantations and cattle, \$50,000,000; city real estate, \$5,200,000; total, \$187,700,000. The projected Tuxpan Railway will take \$25,000,000 more, and an English mortgage-bank \$5,000,000, making the total \$217,700,000.

Capitol and Taxes. The correspondent of a Boston journal writing from the capital, draws the following curious but no doubt faithful picture: "A leading Mexican statesman estimates the uninvested capital here in the city of Mexico alone at \$50,000,000, a sum big enough to have built the Central Railway and left enough to drain the valley of Mexico in the most thorough manner and after the costliest plans. All through the large cities of the republic this strange fact appears again and again, the actual possession of large sums with no disposition to invest. This lack of the desire to co-operate, to get up stock companies for the development of the national resources, may be attributed to several causes. We know that in Spain, from which country Mexico has inherited some very bad financial traditions, the spirit of co-operation does not exist, and that Spanish railways, mines, and banks are largely owned by English and other foreign capitalists. I do not assert this as an absolutely universal fact, but admit cheerfully that some Spaniards have a genius for business, as the commercial success of many of them here shows unmistakably. But in Spain it is still quite the correct thing to do one's own banking, and to make one's deposit in a strong box or under the tiled floor. Then another bad legacy from Spain to Mexico is the absurd taxation system, which has for its aim to hit every dollar in process of transfer in trade, and knock a bit out of it as a percentage for the Federal, State, or municipal government. Land is insufficiently taxed, houses are not taxed as they should be, but the burden rests on imported goods, and on sales of merchandise and country produce. The man rich in lands and estates gets off with a comparatively light burden. Here in the city of Mexico, stores and houses are not taxed only when rented. That is, the lease has to pay a certain percentage monthly to the municipal government. What is the result? That rents are extortionate, for the landlord with an empty house or store only loses the interest on his investment when his premises are vacant, and has no taxes to pay until a tenant comes along. Naturally the landlord is stiff in his prices. These high rents add materially to the cost of living here, and I should estimate that maintaining a household at this capital is 33 per cent. more expensive than in Boston. There is abundant room in the valley of Mexico for town sites for delightful suburbs, but the suburban towns are few, and the city landlords have the whip in their hands. Rents have materially advanced since the completion of the Central Railway.

There are many quite extensive landlords here now, but in the old days, before that iron-handed reformer, Juarez, drove his way through the old convents, literally blowing the streets right through their walls, the Church was the biggest landlord here, and, as the lower-class people say, not a bad landlord, and rather inclined to mercy when a tenant was poor and unable to pay. But the Church, as a big landlord, is no more, and lives on the tolerance of the Government, between which and it there is an irreconcilable feud."

Rights of Foreigners.—A new law was promulgated on July 7, relating to the rights of foreigners, the principal provisions of which are: "In the acquirement of waste and government lands, of real estate and ships, foreigners are not obliged to reside in the republic, but are subject to the restrictions imposed by the laws now in force, with the understanding that all leases of real estate made to a foreigner shall be considered as sales if the term of the contract exceeds ten years. The laws establishing the matriculation of foreigners are repealed. The Department of Foreign Affairs alone can issue certificates of determined nationality to foreigners soliciting the same. These certificates constitute a legal presumption of foreign citizenship, but proofs to the contrary are not barred. The definite proof of determined nationality is presented before the competent courts and by the means established by laws or treaties.

During the summer an English syndicate, headed by Baron Rothschild, purchased 200,000 acres of excellent farming-land in the State of Chihuahua.

Commerce. The following tabular statement exhibits Mexican importation of merchandise, and specie, and bullion, during the fiscal year ended June 30, 1884:

COUNTRIES.	Value.	COUNTRIES.	Value.
To England.....	\$10,340,152	To South America.....	\$353,578
To the United States.....	21,824,401	To other countries.....	85,888
To France.....	2,881,999		
To Spain.....	1,016,157	Total.....	\$46,726,496
To Germany.....	1,218,276		

The precious metals figured in the above total to the extent of \$33,473,283. During the first six months of the following fiscal year, 1884-'85, the total export amounted to \$21,236,975, including specie and bullion, against \$22,052,870 during the corresponding period of the preceding year; there was, consequently, a decrease of \$815,904, or about 3½ per cent. The precious metals were comprised in the export movement to the amount of \$12,487,468, against \$16,219,494 in 1883-'84. Of silver alone there were shipped \$1,424,230 less, whereas there was a slight increase in the amount of gold shipped as well as in merchandise, the latter representing \$5,799,507 against \$5,733,336 the previous year. Since Mexico became attached to the American railroad system, a good many commercial changes have occurred.

Guanajuato, population about 60,000, the capital of the central State of the same name, used to be a center of distribution for the wholesale trade of the State in dry-goods, hardware, etc., and on the goods sold the 6 $\frac{1}{2}$ per cent. consumption-tax due the State was levied. Now, all the retail stores near the frontier of the State try to save this 6 $\frac{1}{2}$ per cent., and buy what they want in small quantities in Mexico, and smuggle the goods across the frontier, which is an easy matter, there not being a close control. The railway enables them to get the goods in as many days as it formerly took weeks.

Mexican manufactures, especially of cotton goods, have of late years made some headway, but they are, on the whole, of a quality more calculated for consumption by the bulk of the common people, the Indians in particular, leaving room for American and English goods in spite of the high import duty. The Mexicans even produce some prints. Linen goods and woolens they receive from England and the Continent.

The American trade (merchandise) with Mexico exhibits these figures :

FISCAL YEAR.	Imports into the United States.	Domestic exports from the United States.
1883	\$8,177,128	\$14,370,992
1884	9,016,436	11,089,603
1885	9,167,021	7,370,399
1886	10,657,972	6,556,077

The domestic export from the United States during the fiscal years 1883 and 1884 was largely composed of railroad material, and there was a notable decrease, as our table shows, when the railways built with American capital came to be finished. On the other hand, the forwarding of silver coin *via* Paso del Norte to the United States, both for American account and in transit, has become very considerable, since both countries are forming one continuous railroad system. To some extent, this increase of silver receipts from Mexico may be due to larger silver production, and to the fact that the United States is the best market for silver, since under the Bland bill the country accumulates the metal in its treasury.

Cotton.—The raising of cotton in Mexico appears to be discouraged, if not prevented, by the importations of American cotton, which the new railroad facilities have promoted. Upon this subject Consul Mackay says: "The district of the Laguna, in the State of Coahuila, is the great cotton-producing region of Mexico, and furnishes to her factories annually from 30,000 to 40,000 bales. Prior to the construction of the great railways from the north, the price of Mexican cotton varied from 13 to 15 cents, and in the home market competed successfully with the product of the United States. Cotton was then imported from Texas in carts and wagons through Nuevo Laredo and Piedras Negras to the interior. The difficulties encountered in the transportation of

so bulky and heavy a commodity by means so primitive can be easily imagined. Under favor of these circumstances, the cultivation of cotton became one of the most profitable branches of agriculture, and extended largely and rapidly, so that in a few years Mexico must have produced a sufficient quantity to wholly supply her own factories. The completion of the railways leading to the United States prejudiced the market and greatly diminished the production of cotton in Mexico, as cotton could now be imported without the expense and delay that were hitherto unavoidable. The Mexicans complain that the advent of railways has not only injured the producers of cotton at home by facilitating the importation of American cotton in the degree necessarily the consequence of cheaper and quicker means of transportation, but that, by special and personal rates of freight, the railways have discriminated against Mexican producers."

Cotton-Industry.—The manufacture of cotton goods in Mexico affords employment for upward of 50,000 families. It is estimated that more than three fifths of the inhabitants of Mexico wear no foreign goods, but dress principally in *manta* (or brown shirtings) of native make. The annual consumption of the Mexican mills is nearly 80,000,000 pounds of raw cotton, of which about one third is obtained from the United States. The number of spindles is estimated at 500,000, in 82 mills scattered throughout Mexico. The total annual output of brown shirtings from the Mexican cotton-mills is estimated at 3,800,000 pieces of brown shirtings of thirty yards each, besides 2,753 tons of yarn, which is used by the manufacturers of *rebozos* (light shawls worn over the head by women), counterpanes, towels, stockings, etc. In addition about 300,000 pieces of print are produced annually.

Silk.—Consul-General Porch reported in November to the following effect: "The places where silk-worms are raised are Oajaca, State of Oajaca; Tetla, State of Puebla; Ixmiquilpan, State of Hidalgo. The business has also been introduced into the States of Jalisco, Tlascala, Michoacan, Querétaro, Vera Cruz, and Chihuahua. It is believed that in the course of the next five years more silk will be manufactured in Mexico than can be consumed by her people, although at present the industry is in its infancy. There are now three or four well-equipped factories in the republic, and the raw material produced is still insufficient to supply the demands. Chinese silk, in skeins, is received in large quantities from London. One very encouraging feature here is the cheapness and efficiency of labor, women receiving thirty-seven and a half cents a day, men one dollar, this being the average; women are preferred for the work, because in this extremely interesting business great delicacy, nimbleness, and neatness are essential. It is claimed that silk can be manufactured here for one half what it costs in Paris."

The following is a translation of a decree for the encouragement of the silk-industry, issued by the Governor of the State of Puebla, Mexico, under the authority of the Legislature of that State, dated March 30, 1886:

A subvention of one dollar for each kilogramme of silk produced during the first year, and of fifty cents for each kilogramme produced during each of the following years, is hereby granted to the inhabitants of the State who, within its territory, dedicate themselves to the culture of silk.

The tracts of land that are solely and exclusively devoted to the planting of mulberry-trees become thereby exempt from all contributions in the State for five years, as long as, during this period, the mulberry-plantations are preserved.

Those persons who gather a crop of more than one hundred kilogrammes of silk during the years in which they receive subventions will deliver to the State government, or its duly authorized representatives, one hundred grammes of silk-worm seed and two hundred saplings of mulberry-trees.

The first factory of spun and woven silk goods established in the State, and judged by the Executive to offer fair prospects of stability, shall receive a subvention of \$5,000.

Mining.—The extraction of silver in the Pachuca district from Jan. 1 to April 1, 1886, was as follows:

	Kilos.		Kilos.
Real del Monte.....	13,797	Purísima y Guadalupe.....	516
Maravillas.....	9,482	La Blanca.....	462
Santa Gertrudis.....	8,056	Calderona.....	370
Sacramento.....	2,428	Marcial Islas.....	221
El Encino.....	1,054	Total.....	37,620
El Rio.....	723		
P. Duarte.....	561		

The exclusive privilege of reducing metals by electricity was granted by Government decree for ten years to Messrs. E. H. and A. H. Cowles.

The locality in Querétaro is the only one in Mexico that is worked to any extent for opals. The principal mines are on the *hacienda* of Esperanza, where the opal was discovered ten years ago. No mines were taken up until 1870, when Dr. José María Liurof located the mine of Santa María Iris. The fine specimens secured during the next few years created so much excitement that a large number of mines were located, most of which are now abandoned. The district has been traced over a region about twenty leagues long by thirty-one leagues wide. At Ciervo, fourteen leagues from Esperanza, the opal is quite abundant, though none of the precious variety of good quality has been found. The mines of Esperanza can only be reached on horseback.

In the Popocatepetl sulphur-mines, the best sulphur is obtained around the *respiradores* or orifices of the volcano; it contains from 82 to 87 per cent. of pure sulphur. The miners are paid 75 cents American for twenty-five pounds, a low price, considering the heavy and sickly work they have to undergo.

Agricultural Implements.—Consul Campbell reports to the State Department at Washington as follows: "Among the more enlightened and progressive Mexicans modern agricultural implements are used to some extent, and American mowing, reaping, and thrashing machines

are slowly coming into use. American plows are also common enough, but of a small and entirely unfit pattern for the use to which they are put. Following the idea that the wooden plow is a necessity, the Mexican farmer, if he buys an American plow at all, insists upon getting so small a one that the result of its use is but little more effective than would follow that of an old-fashioned iron-toothed harrow. Such innovations are rare, however, and by ninety-nine out of one hundred farmers the only tools used are the plow made from a forked stick, the hoe weighing often from three to five pounds, and the saw-toothed sickle. With these three tools, year in and year out, Mexican crops are raised and gathered."

Railroads.—There were in operation, early in 1886, the following lines of railway:

LINE.	Length in kilometres.	LINE.	Length in kilometres.
Mexico to Paso del Norte.....	1,971	Irolo to Pachuca.....	59
San Luis Potosí to Tampico.....	115	Puebla to San Juan.....	93
Mexico to San Luis Miguel de Allende.....	409	Esperanza to Tehuacan.....	50
Nuevo Laredo to Saltillo.....	379	San Andrés to Chalchihui... conula.....	10
Matamoros to Monterrey.....	75	Santa Ana to Tlascala.....	8
Acapulco to Morelia.....	92	Vera Cruz to Alvarado.....	71
Mazatlán to Colima.....	46	Yucatan.....	126
Zacatecas to San Luis.....	6	Tehuantepec.....	76
Mexico to Salto.....	67	Puebla to Matamoros.....	44
Piedras Negras to Venadito.....	470	Puebla to San Martín.....	87
Mexico to Vera Cruz.....	424	Toloyoca to San Agustín.....	27
Apizaco to Puebla.....	47	San Marcos to Nautla.....	25
Guaymas to Nogales.....	426	Chalco to Tlalmalenco.....	18
Jalapa to Yantepéc.....	161	Tepa to Tulancingo.....	10
Mexico to La Luz.....	183	San Luis Potosí to Soledad.....	6
San Lorenzo to Colpulalpan.....	9	Campêche to Kalkin.....	7
Jalapa to Vera Cruz.....	114	Culiacan to Altata.....	62
Jalapa to Coatepec.....	6	Vera Cruz to Jalapa.....	25
Orizaba to Ingenio.....	5	Tramways.....	260
		Total.....	5,969

The net earnings of the Mexican Central road, for the year 1885, were \$1,530,618, against \$1,322,764 the previous twelvemonth; during the first four months of 1886 they were \$410,116, as compared with \$601,537 during the corresponding period of 1885, and during the first five months \$508,685, against \$734,515; the decrease was, therefore, \$225,830, while the operating expenses had increased \$183,003.

In August a conference was held between the representatives of the Mexican National Construction Company and the foreign bond-holders of the Mexican National Railway Company, on the proposed reorganization of the company. The foreign bond-holders declared their willingness to accept the main features proposed by the American company; but they insisted that there should be a complete foreclosure and reorganization, and that the control should vest in the bond-holders until the property was placed on a satisfactory earning basis. The total amount of the new first mortgage proposed was \$12,500,000. This was considered sufficient to complete and equip the road, and provide for other requirements.

In October the basis of an agreement was signed between the banking-house of Matheson

& Co., of London, and Mr. W. J. Palmer, president of the company, providing for the settlement of all controversies and the reorganization of the road, with a view to its completion. In November the work of construction was being pushed at the rate of a mile a day. The gap to be filled in the main line is 582½ kilometres, or 362 miles, between Saltillo and San Miguel de Allende, which will involve an outlay of \$5,000,000, and there will further be built a branch line to the coal-mines costing \$1,000,000; and \$2,000,000 additional will have to be spent for completion and equipment.

In May the Federal Government granted a concession to the Governor of the State of Durango for the construction of a railway to unite the city of Durango with the Mexican Central road. In July the reformed concession granted by the Mexican Government to the Sinaloa and Durango Railway Company, a Boston organization, authorized the company to construct four distinct lines: the first, from Culiacan to Alata; the second, from Durango to Mazatlan, Villa Lerdo, and Saltillo; the third, from Culiacan to Mazatlan and Alamos; and the fourth, from Durango to some point on the Rio Grande river, after passing through the State of Coahuila. Surveys to begin within six months; plans for the first section of 100 kilometres to be submitted within eighteen months, and work to begin within three years. The capital is limited to \$20,000 a kilometre, and the subsidy is fixed at \$7,000 a kilometre.

In June the Mexican Government granted a concession to J. A. Verger for the construction of the Mexican Pacific Railroad, which is to connect the capital with the Pacific at a point between Acapulco and Manzanillo, *via* Cuernavaca and Puente de Istla; surveys to be finished within nine months from date of signature of the contract, and the building of the line to begin within a year. The entire line to be in operation at the end of ten years; material to be admitted duty free.

In September a company of English capitalists secured the old concession for a railroad from Tuxpan to the capital, to be built at a cost of \$25,000,000. During the same month the concession granted to Gen. Grant's Southern Mexican Railway for waste lands in the States of Vera Cruz, Puebla, Oajaca, and Chiapas, was officially declared forfeited. The railway concession had long since been forfeited.

The Tehuantepec Ship-Railroad.—In his annual message of September 16, President Diaz said that arrangements had been made regarding the railway across the Isthmus of Tehuantepec, which he hoped would result in pushing on this great work.

Telegraphs.—There are in operation in Mexico 21,000 kilometres of Government lines; 1,653 kilometres of State lines; 4,431 kilometres of railroad, and 3,301 private lines, together with a cable 703 kilometres in length, constituting a telegraphic system extending

over 31,088 kilometres. The number of Federal telegraph-offices is 327.

Steamships.—The Mexican Government granted in May a concession for a steamship line between San Diego, California, and San José de Guatemala, touching at Mexican Pacific ports, the company to receive a subvention of \$8,000 for each round trip.

From the middle of September, the New York and Eastern mail for Yucatan and Mexican points was sent by the New York, Havana, and Mexican Steamship line, plying between New York and Vera Cruz, instead of overland, as heretofore.

Electric Light.—In February the city authorities of Mexico made a contract with Samuel Knight for the placing of 100 electric street lamps.

Natural Phenomena.—On Dec. 26, 1885, the volcano of Colima went into a state of violent eruption. Loud reports were heard, and these were soon followed by outbursts of lava, which flowed over the sides of the mountain, completely covering them. A cloud of smoke overhung the mountain, and on it were reflected flames darting up from the crater. On Jan. 15, 1886, another eruption of the volcano occurred, preceded as before by loud detonations. Enormous stones were thrown to a great height, and were plainly visible from the city of Colima, twenty-five miles distant. Photographs depicting the volcano at the moment of its greatest activity were taken by the instantaneous process. A vast white cloud overhung the crater. On February 17 the crater had diminished in size, but the eruptions continued.

In February exceptionally cold weather prevailed on the Mexican table-land. Snow fell at Zacatecas, a thousand feet higher than Mexico; and at Mexicalcuiño, four miles distant from the latter, it fell to the depth of four inches on February 2, and on February 4 there was a slight snow-squall at Mexico, the snow melting as it fell. This was the first snow that had fallen in the vicinity since 1856. The mercury, during a norther, fell to 52° at Vera Cruz on February 4.

A shock of earthquake, with oscillations from east to west, was felt in the State of Mexico, between four and five o'clock in the morning of September 3.

A curious phenomenon occurred at Chimalpa, in the same State, on October 2. Tremendous subterranean reports were heard, though at the time the meteorological conditions were perfect, there being no unusual aspect of the sky, nor the slightest rain. It was found that a high hill in the vicinity had been completely divided into two parts by some powerful force.

MICHIGAN. State Government.—The following were the State officers during the year: Governor, Russell A. Alger, Republican; Lieutenant-Governor, Archibald Buttars; Secretary of State, Harry A. Conant; Treasurer, Edward H. Butler; Auditor, William C. Stevens; At-

torney-General, Moses Taggart; Superintendent of Public Instruction, Theodore Nelson; Land Commissioner, Minor S. Newell; Insurance Commissioner, Henry S. Raymond; Railroad Commissioner, William McPherson, Jr.; Labor Commissioner, C. V. R. Pond. Supreme Court: Chief-Judge, James V. Campbell; Associate Justices, Thomas R. Sherwood, John W. Champlin, and Allen B. Morse.

Credit and General Condition.—The Governor, in his message to the Legislature of 1887, says: "Our State is practically out of debt; consequently, nothing need be said of its credit, because it does not use it, nor is it probable that it will ever have occasion to do so again. The Treasurer's report shows that the State of Michigan owes \$231,000, which will mature in 1890, and the Treasurer has in his possession United States Government 4½-per-cent. bonds to the amount of \$231,000, which balances the account. The crops for the past two years have in the main been excellent and abundant; business everywhere is prosperous and increasing, and a spirit of amity seems to exist between employés and employers throughout the State, where heretofore more or less disagreement in many locations divided them."

State Institutions.—The State institutions are, in the main, in excellent condition. The State University, Agricultural College, and Normal School all require appropriations for repairs, improvements, and maintenance. The Reform School for Boys, at Lansing, is doing a good work. "The Industrial Home for Girls, at Adrian," says the Governor, "needs some careful attention and consideration. A very great wrong connected with this institution should be righted at once. While there are many bad girls in the school, there are quite a large number of small ones, and some larger ones too, who are sent there simply because they have no friends. They are charged with 'vagrancy,' and with being 'wayward'—anything to come under the letter of the law, to get rid of the care of them. No girl can go to that school without carrying away more or less of a taint which affects her character, and will do so through life, as it is purely a reformatory, and the innocent class referred to should be taken away immediately. Several smaller girls have been sent home and recommended to the Coldwater school within the past year, from which place they have been sent to comfortable homes. I recommend the enactment of a law absolutely prohibiting the sending of any girl to that institution that has not a bad character. Also that the law be so made that girls now there, or hereafter sent there, under any circumstances, of that class, may be transferred to the Coldwater school direct, upon the consent of the joint boards of the two institutions." The Coldwater school in twelve years has received nearly 2,200 children, and placed in homes over 1,900 of them. Its management is excellent. This institution has the great advantage of a special agent,

which the Governor recommends for the Reform School and the Industrial Home for Girls, who spends the greater part of his time in finding homes for the children, and looking after them after they are placed in such homes. "The State Prison at Jackson needs a thorough overhauling. The Ionia House of Correction is in excellent condition. At the State Prison for the Upper Peninsula the work of construction is progressing in a most satisfactory manner. The site is beautiful, and the surroundings all that could be desired. The schools for the Blind and Deaf and Dumb are doing a good work. The four insane asylums have made requests for improvements, for the purchase of land, and for the building of cottages. The new asylum at Traverse City is, in construction and management, all that could be desired. The Asylum for Insane Criminals, at Ionia, is ably managed, but its location, overlooking the prison-yard, is unfortunate. The mining interest of Michigan has become so great, although still in its infancy, that all that pertains to the scientific knowledge concerning it should be encouraged. The mining school has opened under the most favorable auspices, and at the close of the first term is in admirable working order. The Soldiers' Home was erected on a beautiful site near Grand Rapids, which was purchased by its citizens at a cost of about \$16,000, and presented to the State. Plans and specifications were advertised for to construct a building that would accommodate at least 400 people. The bids ranged from \$158,381 to \$99,667.61. The latter was accepted. The building was substantially completed and dedicated on December 30. The Home, since it was established, has accommodated a large number of old soldiers, but could not take all who applied, although deserving, on account of lack of funds. These veterans have been scattered around among boarding-houses since the law establishing it went into effect. An average of 400 veterans will need to be accommodated." Below will be found the amount of appropriation made to the several institutions for 1885 and 1886, and the amount asked for 1887 and 1888:

INSTITUTION.	1885-'86.	Asked for 1887-'88.
Michigan Asylum.....	\$22,000 00	\$49,553 00
Eastern Asylum. \$15,000		
Eastern Transfer. 15,000	80,000 00	
	186,700 00	8,809 17 special.
Northern Asylum.....		
Asylum for Insane Criminals.....	81,250 00	81,180 00
Reform School.....	127,000 00	104,000 00 17,700 00 special.
Total		\$121,700 00
State Public School.....	91,200 00	70,200 00 8,500 00 special.
Total		\$75,700 00
Industrial Home for Girls.....	78,500 00	65,820 00 35,500 00 special.
Total		\$104,820 00
Michigan School for Blind.....	86,920 00	56,000 00 912 07 special
Total		\$56,912 07

INSTITUTION.	1885-'86.	Asked for 1887-'88.	COUNTIES.	Valuation.	COUNTIES.	Valuation.
Deaf and Dumb Institute.	\$120,425 00	\$105,000 00	Oscoda.....	\$1,000,000	St. Clair.....	\$16,500,000
Total.	45,940 00	37,925 00 special.	Otsego.....	2,000,000	St. Joseph.....	18,000,000
State Prison.	6,800 60	117,200 00 special.	Ottawa.....	18,000,000	Tuscola.....	10,000,000
State House of Correction and Prison U. P.	150,000 00	13,775 00 special.	Presque Isle.....	1,250,000	Van Buren.....	14,000,000
Agricultural College.	57,729 00	73,565 00	Roscommon.....	1,500,000	Washtenaw.....	80,000,000
University.	\$107,500	188,500 00	Saginaw.....	38,000,000	Wayne.....	150,000,000
1-20 mill tax.	81,000	211,565 94	Sanilac.....	7,500,000	Wexford.....	8,250,000
State Normal School.	65,700 00	.....	Schoolcraft.....	8,000,000	Shiawassee.....	15,000,000
Mining School, U. P.	25,000 00	200,000 00	Total.....	\$945,450,000		
Soldiers' Home.	150,000 00	.....			
Fish Commission.	32,700 00	.....			
State Library, purchase of books.	6,000 00	6,000 00				
State officers and State Government.	1,491,774 90	1,550,000 00				
Michigan Superintendents of the Poor.	800 00	800 00				
Pioneer Society.	800 00	.....			

Commissioner of Railroads.—This commission was established in 1873. The following figures indicate the growth of this interest, which has kept pace with the increase of population and wealth in other branches of industry:

ITEMS.	1873.	1885.
Miles of railroad.	8,253	5,509
Gross earnings.	\$35,000,000	\$77,000,000
Passengers carried.	9,000,000	24,000,000
Locomotives.	1,322	2,706
Cars of all kinds.	80,675	84,188

It will be seen that the business and property of the railroads of the State have more than doubled in twelve years, but, with this increase in miles of road, property, and business, there has been no increase in the force provided for the commission.

Valuation for Taxation.—The following is the assessed valuation of property, by counties, in 1886, as agreed upon by the State Board of Equalization:

COUNTIES.	Valuation.	COUNTIES.	Valuation.
Alcona.....	\$2,500,000	Iron.....	\$4,750,000
Alger.....	2,500,000	Isabella.....	4,500,000
Allegan.....	15,000,000	Isle Royal.....	100,000
Alpena.....	8,500,000	Jackson.....	31,000,000
Antrim.....	3,250,000	Kalamazoo.....	24,000,000
Arenac.....	1,250,000	Kalkaska.....	3,750,000
Baraga.....	1,500,000	Kent.....	45,000,000
Barry.....	13,000,000	Keweenaw.....	2,750,000
Bay.....	22,000,000	Lake.....	2,000,000
Benzie.....	1,500,000	Lapeer.....	13,500,000
Berrien.....	17,000,000	Leelanau.....	1,000,000
Branch.....	17,500,000	Lenawee.....	28,000,000
Calhoun.....	28,000,000	Livingston.....	10,000,000
Cass.....	15,000,000	Mackinac.....	2,500,000
Charlevoix.....	2,500,000	Macomb.....	16,500,000
Cheboygan.....	8,500,000	Manistee.....	7,000,000
Chippewa.....	8,500,000	Manitou.....	100,000
Clare.....	8,500,000	Marquette.....	15,000,000
Clinton.....	17,500,000	Mason.....	4,000,000
Crawford.....	1,700,000	Mecosta.....	6,000,000
Delta.....	3,500,000	Menominee.....	6,250,000
Eaton.....	17,500,000	Midland.....	2,500,000
Emmet.....	2,000,000	Missaukee.....	3,250,000
Genesee.....	22,000,000	Monroe.....	15,000,000
Gladwin.....	1,200,000	Montcalm.....	9,500,000
Grand Traverse.....	4,000,000	Montgomery.....	1,250,000
Gratiot.....	9,500,000	Muskegon.....	11,000,000
Hillsdale.....	21,000,000	Newaygo.....	4,750,000
Houghton.....	6,500,000	Oakland.....	27,000,000
Huron.....	6,500,000	Oceana.....	4,000,000
Ingham.....	18,500,000	Ogemaw.....	1,000,000
Ionia.....	17,000,000	Ontonagon.....	3,750,000
Iosco.....	2,000,000	Osceola.....	8,750,000

Political.—The Republican State Convention met at Grand Rapids on August 25, and nominated the following ticket: For Governor, Cyrus G. Luce; Lieutenant-Governor, James H. Macdonald; Secretary of State, Gilbert R. Osmun; State Treasurer, George L. Maltz; Auditor General, Henry H. Aplin; Attorney-General, Moses Taggart; Commissioner of the State Land-Office, Roscoe D. Dix; Superintendent of Public Instruction, Joseph S. Estabrook; Member of State Board of Education, Samuel S. Babcock. The following platform was adopted:

We favor a tariff upon the imported products of low-priced foreign labor, fairly and justly distributed, so as to protect the interests of American wage-workers without adding to their burdens, and we point to the history of Republican legislation as exhibiting such wise revisions of the tariff laws from time to time as have secured these valuable results for the country and the people. The party whose quick sense of its duty to the people is responsible for those achievements can be depended upon to make such future revisions of the laws as shall be found to be most advantageous to the real interests of American industry, and conspicuous among the changes we now deem salutary is the restoration of the tariff of 1867 on wool. The record of the Democratic party shows its utter incapacity to deal with this subject.

The money of the Constitution is gold and silver coin, and the paper representative of money, including gold and silver certificates, and treasury and bank-notes, should always be convertible into coin of equal denomination at the will of the holder. We produce both gold and silver largely in our own country, and therefore these metals, so far as is consistent with sound principles of finance, should be utilized as money.

We regard with favor the intelligent organization of labor for such worthy purposes as mutual education and for the protection of their interests in all things relating to their welfare, and to the industrial welfare of the country, and we favor the enactment of State and national laws providing for the settlement of controversies between employers and employees by methods of voluntary arbitration, or by the establishment of courts of conciliation to avoid the waste, loss, and ill-feeling resulting from strikes and lockouts, and the usual burden and expense of litigation. We are opposed to the importation of Chinese labor into this country, or of any other foreign laborers under the contract system. We favor any plan for the relief of free labor from the competition of convict-labor which does not impose upon free labor a greater expense of supporting convicts in idleness or useless labor, and we favor the adoption of laws providing for the protection of workers in our mines and other hazardous callings, for the regulation of the labor of children, and for such other measures as will sustain and improve the material and social welfare of our industrial population. We are earnestly opposed to the doctrine of the so-called Anarchists, and we believe in the utmost protection to each and every individual in the enjoyment of the fruits of all his personal efforts to earn an honest livelihood.

We believe that when any considerable portion of the State desires to express itself by vote upon a

change in the organic law, it ought to be allowed to do so in a constitutional manner; and recognizing the evils of intemperance and desiring to overcome those evils, we believe the temperance question is one upon which that expression should be so permitted. We further demand the thorough enforcement of the present tax and police laws.

We are opposed to the granting of the Government domain to non-resident foreigners, to the exclusion of our own citizens, to whose ownership and use for homes it should be dedicated.

We again declare our constant sympathy with the just and consistent Republican policy and practice of granting out of the nation's abundance generous pensions to the disabled veterans of our wars, whether for the country's defense or for the preservation of the Union. We denounce the present national Administration for its indefensible vetoes of meritorious measures to the relief of veterans, and the widows and orphans of veterans, and condemn the coarse and insolent terms in which those vetoes were expressed. We protest against the removal from official places of worthy and disabled Union soldiers to make way for partisan civilians and ex-Confederates.

We favor such wise national legislation in regulation of commerce between the States as will prevent extortion by common carriers and secure for the producer the transportation of his products to all markets at a reasonable and proper cost and without unjust discrimination in favor of any class, interests, or sections. We also favor the amendment of the patent laws so as to exempt the owners and users of patented articles purchased in the ordinary way of trade from any liability to the patentee or his assigns.

The Democrats and Greenbackers put a fusion ticket in the field, consisting of the following candidates: For Governor, George L. Yapple; Lieutenant-Governor, Solomon S. Curry; Secretary of State, Philip B. Wachtel; Treasurer, William G. Beard; Auditor, Judson S. Farrar; Land Commissioner, Alonzo T. Frisbie; Attorney-General, John C. Donnelly; Superintendent of Public Instruction, David Parsons; Member of Board of Education, Orren E. Downing.

The Prohibitionists had a ticket in the field, headed by Samuel Dickie. On November 2 the Republican ticket was elected. The vote for Governor was as follows: Republican, 181,474; Fusion, 174,042; Prohibition, 25,179; scattering, 190. Two proposed amendments to the Constitution were rejected.

Five Democrats (First, Fifth, Seventh, Eighth, and Tenth districts) and six Republicans were elected to Congress. The Legislature consists of 22 Republicans and 10 opposition in the Senate, and 62 Republicans and 38 opposition in the House.

MINNESOTA, State Government.—The following were the State Officers during the year: Governor, Lucius F. Hubbard, Republican; Lieutenant-Governor, Charles A. Gilman; Secretary of State, Frederick von Baumbach; Treasurer, Charles Kittelson; Auditor, W. W. Braden; Attorney-General, W. J. Hahn; Superintendent of Public Instruction, D. L. Kiehle; Public Examiner, H. M. Knox; Insurance Commissioner, A. R. McGill; Commissioner of Statistics, A. F. Nordin; Railroad Commissioners, James H. Baker, G. L. Becker, and S. S. Murdoch. Supreme Court: Chief-Judge, James Gilfillan; Associate Justices, John M. Berry,

William Mitchell, D. A. Dickinson, and Charles E. Vanderburg.

Finances.—The following statements give a general idea of the transactions of the treasury for the fiscal years 1885 and 1886:

ITEMS.	1885.	1886.
Cash balance July 31, 1884...	\$986,795 04	
Cash balance July 31, 1885...	513,818 42	\$615,145 26
State taxes.....	660,698 80	
Miscellaneous receipts from counties.....	87,090 81	89,408 87
Taxes on gross receipts of railroad companies.....	678,302 69	591,388 57
Taxes and fees on insurance, telegraph, and mining companies.....	70,641 88	84,144 41
Principal on school, university, and internal improvement land contracts.....	282,660 29	306,076 22
Interest on the same.....	218,400 88	382,518 59
Interest on invested trust funds.....	189,472 25	164,518 25
Sale of bonds, account of trust funds.....	192,782 47	668,962 50
Miscellaneous.....		287,468 48
Total.....	\$8,014,459 18	\$3,748,364 50
DISBURSEMENTS.	1885.	1886.
Legislative expenses.....	\$78,605 72	
Executive expenses.....	69,908 80	\$70,606 59
Judicial expenses.....	82,474 76	95,837 82
Printing and stationery.....	43,206 44	14,916 81
Printing laws in newspapers.....	84,191 00	
Books and court reports.....	3,594 90	7,162 78
Support of insane.....	216,639 80	218,026 67
Support of deaf and dumb, blind, and imbecile schools.....	60,000 00	69,459 01
Support of normal schools.....	40,995 62	45,000 00
Support of prison.....	65,983 06	63,674 16
Support of reform school.....	85,000 00	85,000 00
Support of university.....	72,140 08	71,537 71
New buildings and improvements at State institutions.....	171,941 70	263,569 95
State Agricultural Society buildings.....	15,000 00	85,000 00
Purchase of bonds for trust funds.....	502,494 18	842,250 00
Appropriated school fund.....	350,781 55	838,758 12
Minnesota National Guard	27,384 91	20,891 81
Census expense.....	8,485 14	30,754 48
Interest on State debt.....	186,919 85	184,404 74
Redemption of State debt.....	28,000 00	116,000 00
High-schools, institutes, and text-books.....	101,192 67	55,601 84
Agricultural societies.....	9,858 66	17,887 90
Tree-bounties	14,234 25	21,523 92
Roads and bridges.....	49,419 45	47,497 56
Miscellaneous	141,923 68	167,887 88
Total	\$2,400,818 62	\$2,816,719 28
Balances, July 31.....	\$614,145 56	\$892,145 27

The status of the trust funds of the State on July 31 was as follows:

PERMANENT SCHOOL FUND.	
Cash	\$350,518 81
Land contracts	8,694,842 15
Unpaid drafts, drawn prior to Dec. 1, 1882.....	1,172 25
\$1,951,000 Minnesota R. R. adjustment bonds.....	1,950,025 00
\$61,000 Minnesota r-venue bonds.....	61,000 00
\$51,650 United States registered 4-per-cent. bonds.....	62,994 18
\$1,700,000 Tennessee 8-per-cent. bonds.....	1,164,250 00
Total	\$7,814,797 89
Less premiums paid on United States bonds from general fund.....	11,631 25
Total	\$7,803,166 14

PERMANENT UNIVERSITY FUND.	
Cash.....	\$76,390 15
Land contracts.....	408,644 65
\$230,000 railroad adjustment bonds.....	250,000 00
Fruit-farm.....	1,309 10
Experimental farm.....	8,500 00
Total.....	\$769,848 90

INTERNAL IMPROVEMENT LAND FUND.	
Cash.....	\$136,846 88
Land contracts.....	1,380,514 45
\$322,000 Minnesota railroad adjustment bonds.....	322,000 00
Interest overdraft.....	11,266 32
Total.....	\$1,850,627 10
Less adjustment bonds canceled.....	322,000 00
Total.....	\$1,528,627 10

These statements show an increase in these funds in two years of \$1,382,610.84, and an aggregate accumulation of \$9,601,637.14. There yet remains unsold of the congressional grant of land from which these funds are derived (estimating the full grant to common schools at 3,090,000 acres) 1,887,571 acres in the common-school grant, 89,823 acres in the university grant, and 175,317 in the internal improvement land grant.

The indebtedness of the State is \$4,026,000. The State debt has been reduced in two years \$457,000 by the redemption of \$139,000 of revenue bonds, and the cancellation of \$322,000 of adjustment bonds, held by the internal improvement land fund. The balance of the revenue bonds, \$61,000, will be redeemed from the revenues of the current fiscal year.

The receipts for the county treasuries of the State for the year ending in February, 1886, were in excess of \$9,000,000.

Education.—There was expended for the support of schools, the last two years, \$6,122,077, as follows:

PURPOSE.	1885.	1886.
For common schools.....	\$2,620,721	\$3,198,815
For State University.....	69,385	79,156
For high-schools.....	23,000	23,000
For normal schools.....	48,000	48,000
For teachers' institutes.....	6,000	6,000
Total.....	\$2,767,106	\$3,354,971

The enrollment in the public schools was 225,215 in 1885 and 243,059 in 1886.

The State University had 310 students in 1885 and 406 in 1886. Additional appropriations to the amount of \$150,000 are required to provide needed buildings. There was expended for new buildings during the past year the sum of \$38,000. For current expenses \$40,000 per annum will be required for the ensuing two years.

The high-schools of the State have increased to 59 and their enrollment to 3,195. The normal schools have increased their enrollment until the capacity of the Mankato and St. Cloud buildings is insufficient, and appropriations are asked for their enlargement. The requirements of the three schools in addition to the annual appropriations for their support as reported by the board, are as follow: Winona, \$6,000; Mankato, \$67,000; St. Cloud, \$47,-

700. The Winona school also asks an appropriation for a ladies' home. The enrollment was:

SCHOOLS.	1885.	1886.
Winona.....	516	576
Mankato.....	577	614
St. Cloud.....	842	875
Total.....	1,435	1,565

A normal school is soon to be established at Moorhead.

Under the provisions of chapter 146 of the General Laws of 1885, which provides for a State school for neglected and dependent children, there has been established and recently set in operation in the city of Owatonna, an institution of the character contemplated. A site including 160 acres of land was given by the city, upon which have been erected three cottages, furnishing accommodations for about sixty pupils.

The reform school had under its care, July 31, 191 inmates. During the two years there were committed to the institution 168, and discharged therefrom 96. The expenses of maintenance were \$29,467.03 for 1885, and \$32,564.62 for 1886. Additional accommodations are required at this institution, but before appropriations are made for the purpose of increasing them, the Governor suggests the advisability of a change of location.

Institution for the Deaf and Dumb, the Blind, and the Feeble-minded.—At the State institution for defective children, embracing the schools for the deaf and dumb, for the blind, and for the feeble-minded, during the past year, there have been in attendance: 157 pupils in the school for the deaf and dumb, 36 in that for the blind, and 78 in that for the feeble-minded. For admission to the latter there are on file 70 applications in excess of accommodations furnished by the present buildings, and the Board of Directors therefore ask for an appropriation for their enlargement.

The disbursements on account of the institute the past two years were \$172,597.58.

Insane Hospitals.—At the end of the last fiscal year there were 1,479 patients under treatment in the two insane hospitals of the State, 874 at St. Peter and 605 at Rochester, an increase of 286 since the last biennial report of the trustees. There was expended for the maintenance of the insane \$223,905.71 in 1885, and \$228,696.97 in 1886, and for new structures and improvements at the two institutions \$112,674.41 for the two years.

A third hospital has been located at Fergus Falls and will be soon constructed.

State Prison.—The capacity of the State Prison has been enlarged since 1885 by the addition of 150 cells, at a cost of \$56,500. It now affords accommodation for 600 inmates. The population of the institution numbered 386 at the date of the inspectors' report, July 31, 1886, which has been increased to 407 since that time. The current expenses were \$65,-

018.30 in 1885, and \$65,135.82 in 1886, and the earnings \$43,179.74 and \$47,472.60 for the same years, respectively. The net per capita cost of maintaining the convicts has been reduced from \$100.79 in 1881 to \$42.88 in 1886. The present capacity of the prison will probably be sufficient to meet the requirements of the State in this regard until accommodations are provided in the second State Prison contemplated by chapter 157 of the General Laws of 1885. This prison, the Governor recommends, should be made a reformatory for convicts sentenced for their first offense.

Soldiers' Home.—The Governor recommends the establishment of an institution for the care of disabled veterans, to be supported by the State.

Militia.—The Minnesota National Guard, as now constituted, consists of two regiments of infantry, one battery of artillery, and a troop of cavalry, representing a total strength of 1,299 officers and men. There have also been organized, at different points in the State, reserve companies of infantry to the number of seven, to which the State has furnished arms and equipments. An interesting feature of the Adjutant-General's report is an exhibit of the work of that department in the prosecution of soldiers' claims for pensions. During the past five years it has prosecuted 1,572 claims of this character, secured the allowance of 849, representing a monthly pension of \$7,113.43, and arrears of pension of \$430,969.47, without the cost of a dollar to the claimants.

Drainage.—In July a delegate convention of residents and property-owners of that portion of the Red river valley lying in Minnesota was held at Crookston, to devise means and adopt methods for a comprehensive system of drainage for that fertile section of the State. The action of the convention resulted in the employment of competent engineers to make surveys, adopt a plan, and report at a subsequent meeting, with estimates of the cost of the proposed work. The report has been submitted, with request for legislation in furtherance of the enterprise.

Liquor-Traffic.—“You will be called upon,” says Gov. McGill, in his inaugural, “at this session to consider measures looking to the further regulation of the liquor business. The people have pronounced in favor of ‘high license, local option, and the rigid enforcement of the laws relating to the liquor-traffic,’ and now turn to you in the hope and expectation that you will, in the form of suitable legislation, give effect to the verdict which they have found. Outside of the limited number engaged in the liquor-traffic in this State, the people, by a very large majority and without regard to political parties, favor the measures proposed.”

Fish.—The Fish Commission have distributed 22,813,147 fish and 14,100,000 eggs in the waters of the State during the past two years. These include the most desirable species of food-fishes adapted to the lakes and streams.

Insurance.—The aggregate insurance business transacted in the State in 1886 was: Risks written, \$203,829,384; premiums received, \$2,770,318.19; losses paid, \$1,268,387.20. The companies paid in taxes and fees to the State \$64,705.76 in 1885, and \$75,089.57 in 1886.

Lumber.—The several surveyors general report the following statistics respecting the lumber interests of the State:

LOCALITIES.	1885.	1886.
FEET LOGS SCALED:		
First district.....	300,022,880	224,423,890
Second district.....	316,262,210	248,127,980
Fifth district.....	47,118,270	70,964,856
Seventh district.....		88,120,540
Total	663,492,880	581,686,266
FEET LUMBER MANUFACTURED:		
First district.....	149,370,370	129,965,960
Second district.....	378,160,690	322,260,820
Fifth district.....	128,520,000	171,750,000
Total	656,051,060	623,976,780

Railroads.—There are now in operation 4,900 miles of railroad in the State, an increase of 738 miles in two years. Cost per mile, as reported, \$35,744.81. The earnings of these roads were as follows:

ITEMS.	1885.	1886.
Gross.....	\$22,617,199 71	\$25,102,819 84
Net.....	11,456,662 68	13,064,052 63
Taxes paid to the State.....	611,748 55	612,545 02

Growth.—“During the five years it has been my privilege,” says Gov. Hubbard, “to occupy the executive office, Minnesota has experienced a development unprecedented in her history, and hardly equaled by that of any other community of the country for a like period of time. Her growth in population has been nearly 60 per cent., and her assessed real and personal estate has increased from \$271,158,961 in 1881, to \$458,424,777 in 1886. The industries and business interests of her people have kept pace in their development with this growth in population and wealth, and the foundations have been broadened and strengthened for that greatness of empire which is the abundant promise of our future destiny.”

Banks.—There are 287 banks in the State, of which but 107 are incorporated either under State or National law. The remaining 130 belong to individuals or firms, but all except 11 have assumed corporate names. The Governor recommends that they be prohibited from using corporate names, or required to incorporate.

Hail-Storms.—On July 24 a hail-storm of great violence passed through Marshall County, totally destroying the crops and greatly injuring much other property over an area of many square miles, reducing almost to destitution about 200 families. At a later date, Swift and Polk Counties suffered from a similar visitation.

Political.—The Democratic State Convention met at St. Paul on September 15, and nominated the following ticket: Governor, A. A. Ames; Lieutenant-Governor, John Frank;

Secretary of State, Luke Jaeger; State Auditor, G. A. Lundberg; State Treasurer, Henry Poehler; Attorney-General, J. N. Ives; Clerk of Court, George T. Gardner. After commanding the administration of President Cleveland, and denouncing the Republican management of the State for the past twenty-six years, the platform continues:

That in national matters there should be a thorough and complete tariff reform. The longer continuance of taxes imposed in time of war for war purposes is unnecessary and oppressive. The oppressed condition of our agricultural and manufacturing industries imperatively demand that they should no longer pay tribute to the monopolists of the East. Justice and sound policy alike dictate that the tools of the laborer and the mechanic, the raw materials of the manufacturer, the implements of the farmer, and all things necessary for the life, comfort, and employment of the people, should not be excluded from our markets or enhanced in price by taxes imposed upon them for the profit of protected millions. We are, therefore, in favor of a revision of the present unequal and unjust tariff and its adjustment to a revenue basis, believing that any tariff system for purposes other than raising revenue for the expenses of the Government, economically administered, is unjust and without constitutional authority.

This convention affirms that the Department of Agriculture, as established at Washington, should be elevated to the dignity and power of a Cabinet position. We maintain that railroad, telegraph, express, and similar corporations are created by State or Federal law for public service, and derive all their powers and privileges from their creators, and are properly subject to legislative government and control. We are unqualifiedly in favor of such legislation in this State as will insure free and open markets for buying and selling, and equitable and reasonable transportation charges and facilities, equal alike to the producer, dealer, and consumer. We favor a careful revision and a stricter enforcement of our State warehouse and grain laws, to the end that the capital and labor of the agriculturist and mechanician may no longer be made to pay tribute to these great corporations who, having in the past done so much for the growth and grandeur of our State, have grown with its growth, and strengthened with its strength, until they are now assuming and exercising authority and power antagonistic to the public welfare, and in opposition to the will of that people who are their creators and whose servants they are.

That we view with anxious interest the great question of labor now agitating the public mind. The advance and perfection of machinery elevated the dignity of labor, and urges it to reach out for more of the intellectual, moral, and social enjoyments of life. In the term of hours which now constitutes a day's work, we find at the very groundwork a gross lack of uniformity, the term running all the way from eight to sixteen hours. It would be a marvel if, in this age, human nature would rest quietly under such oppressive irregularity. The eight-hour term is now a law of the United States Government for all laborers, workmen, and mechanics employed therein; and it is also the equal one third part of our time. In all national, State, or municipal works, a uniform rule should be established and rigorously adhered to. We further demand encouragement to the National Bureau of Statistics and the establishment of a Labor Bureau in our State; better legislation securing the payment of wages earned; provision for the health and safety of operatives; indemnification for injuries received; prohibition of the employment of immature children in shops and factories; protection from the ravages of the usurer and tax-title shark; arbitration for all differences between capital and labor; and legislation against convict-labor being brought into competition

with honest toil. We specially condemn the practice long in vogue in Minnesota of the State hiring out its convicts. We further oppose in public works the convict system, and believe that all such labor should be done by the day and under careful supervision. Whatever may be necessary to better guard the rights and ennable the calling of the laboring classes should receive early and earnest attention.

That inasmuch as the relations of labor to capital, of the public to corporations, are the domineering questions in both national and State politics, and inasmuch as ordinary legislation is vacillating and often partisan as a practical measure, we are in favor of a constitutional convention for the purpose of adjusting those relations upon a sound and equitable basis by ingrafting the traditional doctrines of the Democratic party upon the fundamental law of the State.

That the party is opposed to all class and sumptuary legislation. We encourage immigration of all who are desirous of building up homes and acquiring American citizenship, but we strenuously oppose the importation of foreign labor under contract, as degrading to humanity and hostile to free institutions. The public lands, the heritage of the people, should be reserved for actual settlers. We express our sympathy with the patriots of Ireland in their efforts to secure home-rule, pending which we earnestly hope that Parliament will pass Mr. Parnell's present bill to prevent further evictions until equitable lands laws may be enacted. We declare that the nation owes a debt of gratitude to its soldiers and sailors. We therefore favor such legislation by Congress as will insure to every surviving veteran of the Union forces who is incapacitated from labor a liberal pension for his honorable support during life and for the support of those who are dependent upon him, whether such incapacity occurred during the war or since. We would have it an axiom that "republics are grateful," and that pensions should be cheerfully bestowed as a recognition of honorable services rendered to the nation in its hour of danger. We deplore the fact that in our own State there are to-day a large number of veterans who are objects of public and private charity. We therefore urge that steps be taken by our next Legislature for the erection of a suitable soldiers' home for the care and maintenance of disabled and infirm veterans.

The Republican State Convention was held at St. Paul on September 22. The following ticket was nominated: Governor, A. R. McGill; Lieutenant-Governor, A. E. Rice; Secretary of State, Hans Mattson; State Auditor, W. W. Braden; State Treasurer, Joseph Bobleter; Attorney-General, M. E. Clapp; Clerk of Supreme Court, D. D. Jones; Judges of Supreme Court, D. A. Dickinson, W. H. Vanderburg, and William Mitchell. The platform contains, among others, the following planks:

Gold and silver coin and paper issued against coin actually deposited should be united in the currency of commerce. We believe that the interests of all classes demand the use as money of both precious metals; but we favor an honest silver dollar only, intrinsically equal in value to the dollar of gold. Looking toward the establishment of real bimetallism, which nowhere now exists, we favor such legislation as will most speedily promote consent by the principal commercial nations of the world to resume the free coinage of silver, at a ratio fixed by international agreement.

That we unreservedly indorse the action of the Department of Minnesota, Grand Army of the Republic, at its encampment of last February, in appointing a committee to secure from the next Legislature the provision necessary to establish in Minnesota a soldiers' home and a permanent relief fund. Our representatives are requested to give their influence and votes to the enactment of suitable laws for this purpose.

In behalf of the farmers of Minnesota, with whose interests the Republican party of the State has always been identified, we declare that the present railroad and warehouse law should be so amended in the light of experience gained by its practical operation as to secure an open and unrestricted market for the products of the soil; that the progressive reduction of railway freight and passenger rates which has been accomplished under Republican rule should be continued as rapidly as is consistent with a reasonable return upon such capital as is actually in the business of transportation; that railroads should be restricted from holding lands exempt from taxation except lands in actual use in the operation of the road; that just grades and honest weights and measures should be insured by a sufficient system of local inspection.

We declare that the practice of corporations of watering their stock so as to claim incomes upon fictitious and unreal values can not be too strongly reprehended, and that the rates of freight and transportation upon railroads should be limited to a fair compensation, which should cover the actual operating expenses of the road and legitimate interest upon the capital actually invested, and that laws should be enacted to enforce compliance with this declaration.

That the legal rate of interest in this State should be reduced to a maximum of eight per centum, and the usury laws of the State should be rigorously enforced.

That the State should use a portion of the income of its magnificent school funds in the purchase and supply of all school-books in use in its public schools to pupils actually attending and legally entitled to their privileges.

We demand that ample laws should be enacted for the protection of all persons engaged in mining, manufacturing, and other labor-employing industries, and for ample indemnification of loss or injury through lack of proper safeguards or negligence, and that the employer should be equally liable, whether such loss or injury result from the negligence of the employer or any servant or co-employee; that, without lessening the penalties upon delinquent tax-payers, it should be made forever impossible, under color of law or of any legal decision, to rob the humblest citizen of his home by means of official fraud, negligence, or incapacity.

The rights and equities of labor must constitute the corner-stone of any well-founded state. For advancing the interests of the workingman the Republican party pledges its support to the following principles: It is unworthy of a civilized state that there should exist any inequality in the condition of capital and labor before the law, or that the administration of justice should be impeded by technicalities, unjust delays, or discriminations; the people should reassess and practically enforce, through their representatives, the fundamental principle of universal, civic, and industrial equality; the prison labor of the State should not be employed, under the contract system, in competition with free and honest workingmen; while it is for each municipality to decide whether it will prosecute its public works by contract or by direct employment, in either case the wages of the laborer should be made an adequate remuneration for his toil. The Legislature should establish a State Bureau of Labor Statistics, forbid the employment of young children in laborious occupations injurious to health or strength, should insist on the education of children in the schools, and compel employers to provide safeguards against danger to workmen engaged in mines and factories, and to render indemnification to those injured by reason of absence of the same; arbitration is the only approved method of settling differences between employer and employee, and should be adopted and enforced by appropriate legislation, so as to secure in all disputes an early, fair, and authoritative settlement.

That compensation should be equal without regard to sex for the same amount and quality of work.

The producers of the great Northwest demand a

lower rate of taxation upon the necessities of life than that of the war period. We favor, therefore, as a just and necessary lightening of their burdens and an aid to their prosperity, an early and judicious revision of the tariff, with a simplification and reduction of customs duties; to which work the Republican party, by its last national platform, stands pledged as soon as the people restore to it control of Congress.

That this convention approve of the action of the majority of the Minnesota delegation in the House of Representatives of the United States in voting to consider the bill for the revision of the tariff.

We are in favor of a genuine system of reform of the civil service, based on the appointment to office after proper examination of men of capability, honesty, and fidelity, and we commend the civil-service law passed by a Republican Congress and approved by a Republican Executive as a step in the right direction, and we arraign the Democratic party for an utter disregard of every principle of civil-service reform and for its broken pledges.

The Republican party of Minnesota is in favor of high license, local option, and a rigid enforcement of existing laws relating to the liquor-traffic.

That the Republican party favors the organization by the United States Government, in connection with the post-office, of financial exchanges, safe deposits, and facilities for the deposit of savings of the people in small sums.

The Prohibitionists had the following ticket in the field: Governor, T. E. Child; Lieutenant-Governor, J. P. Pinkham; Treasurer, C. A. Bierce; Secretary of State, P. J. Kniss; Auditor, W. H. Allen; Attorney-General, W. M. Hatch; Supreme Judges, J. McKnight, J. W. Cochran, C. E. Shannon; Supreme Court Clerk, C. A. Fosnes. On November 2 the Republican ticket was elected. The following is the vote for Governor: Republican, 107,068; Democratic, 104,464; Prohibition, 8,966; scattering, 37; Republican plurality, 2,600. For Lieutenant-Governor the vote was: Republican, 114,038; Democratic, 97,028; scattering, 38; Republican plurality, 17,010. The other State officers had about the same plurality as the Lieutenant-Governor. The vote for the amendment of Article VIII of the Constitution stood: Yes, 131,533; No, 17,914. Republican Congressmen were elected in the Second and Fifth Districts, and Democrats in the other three. The Legislature consists of 30 Republicans and 17 Opposition in the Senate, and 66 Republicans and 37 Opposition in the House.

Crops.—The report of the Commissioner of Statistics shows the acreage and yield of the principal cereals and the flax-crop for the year 1885, together with the acreage for the year 1886. A summary of the totals is as follows:

Wheat.—Number of acres in 1885, 8,048,688; number of bushels, 41,253,888; yield per acre in bushels, 13.55; acres in 1886, 8,083,531.

Oats.—Number of acres in 1885, 1,095,805; bushels, 34,388,213; yield per acre in bushels, 31.38; acres in 1886, 1,196,235.

Barley.—Number of acres in 1885, 285,919; number of bushels, 6,658,851; yield per acre in bushels, 23.27; acres in 1886, 327,470.

Corn.—Number of acres in 1885, 580,223; number of bushels, 16,290,035; yield per acre in bushels, 28.07; acres in 1886, 620,955.

Flax.—Number of acres in 1885, 214,873; number of bushels of seed, 2,248,077; yield per acre in bushels, 10; acres in 1886, 248,583.

MIRAGE. In early times the appearance of images in the air was referred to as "atmospheric exhalations," condensing into phantom armies men, cattle, buildings, and other objects, which the superstitious element in human nature soon construed into supernatural signals of approaching disaster. The strait that separates Italy from Calabria is celebrated for the frequency of these displays, and the name "Fata Morgana" conferred upon them by the Italians sufficiently indicates that they were regarded as the productions of a kind of fairy whose good-will toward humanity was looked upon as doubtful. At Poitiers in France a priest was once preaching to a congregation in the open grounds about his church, and, while he was recounting the miracle of

the images, more recently varied by the phantom train occasionally seen by the passengers accompanying that upon which they are traveling. Twenty miles of water separates the coasts of France and England, and each is to the other far below the natural horizon, yet they sometimes appear across the channel, so like reality that even the fishing-boats may be recognized. Lake Ontario is about seventy miles wide opposite Rochester, yet the coast of Canada has presented itself across that distance with distinctness. The images of ships in the air occur frequently in all high latitudes, because the angle of the sun is always low there, and when the sea is calm the conditions of reflection are nearly perfect. Capt. Scoresby while there discovered the position of his

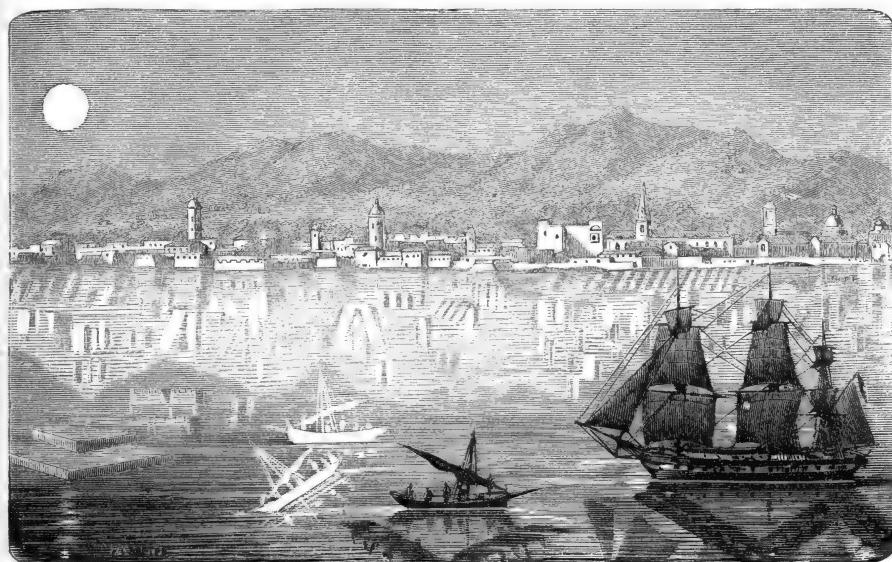


FIG. 1.—THE FATA MORGANA.

the cross appearing in the air to Constantine, the same symbol in like position distinctly presented itself to priest and people, awing the multitude into profound devotion. Subsequent investigation showed that there was in the grounds a material cross exactly similar in its proportions to that which had appeared in the sky. A church in St. Petersburg, standing in the center of an extensive sward, presented its image in the air in the same manner; but a thunder-storm had just passed over and it was about four o'clock in the afternoon; so that the wet sward had the character of a brilliant reflecting surface, and the low altitude of the sun gave the best possible angle for casting the image of the church into the air. Under similar conditions the mirage is occasionally seen over the Western prairies, where horsemen or herds of buffalo furnish

father's ship by seeing its image in the air. When a breeze sprang up, he sailed in the direction of where the phantom had been, and found the reality. This was the first practical use ever made of specters in the air, and yet Sir David Brewster, who was the received authority on optics of those days, misinterpreted the causes of its production and thereby delayed for many years its practical value.

The shadows projected from the tops of Scottish and those from the German mountains differ only in so much as that the latter is cast by the rising and the former by the setting sun, which is referable to the conformation of the surrounding mountains, leaving open the path for the sun's rays at the proper time. They are nothing more than ordinary shadows, made apparent by being intercepted by a cloud or fog-bank, and when this natural back-

ground is not supplied in the path of the shadows they do not appear. The specters of the Brocken disappear by seeming to sink down into the earth, because they are cast by the rising sun; those of Ben Lomond disappear by ascending into the air, because the sun is sinking to the horizon.

On the south coast of England a windmill stands on a point of rocks that projects into the sea, and at sunrise its shadow is seen westward, and it always disappears by ascending into the air, as represented by illustration 3. This shadow also moves northward as the sun moves southward in its morning declination,

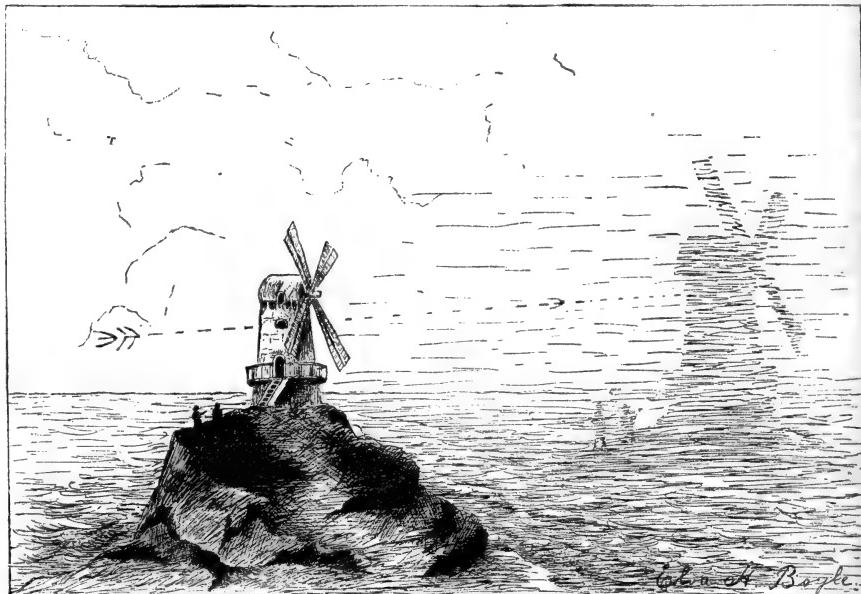


FIG. 2.—WINDMILL IN THE MORNING.

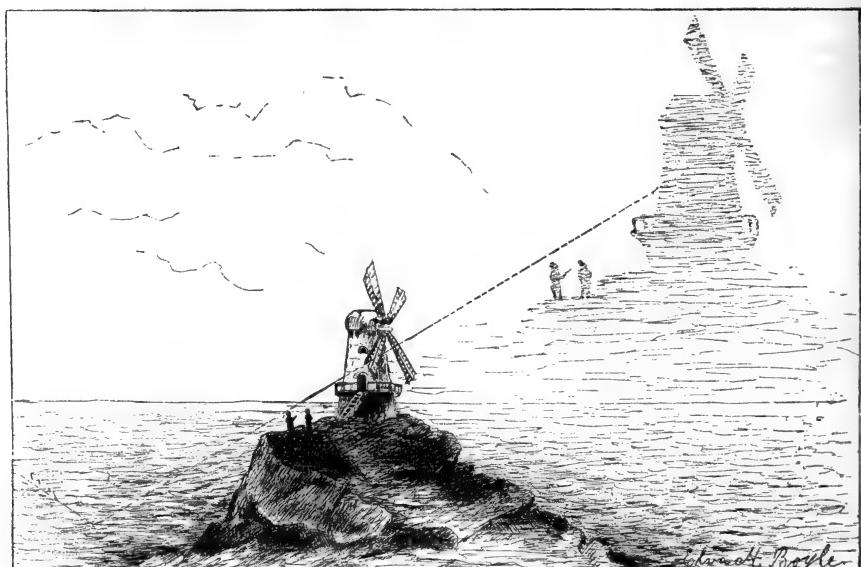


FIG. 3.—WINDMILL AT NOON.

thus proving that the sun and the shadow are moving about the mill as a pivotal center. The reversed image of the mill in this case does not appear in the air, because the southern motion of the rising sun causes the shadow to fall upon the beach westward of it, and therefore it is not reflected as it would be if it were projected on to the water.

Illustration No. 2 shows the shadow projected horizontally, the sun being just above the horizon. In this illustration, No. 3, the feathered end of the broken arrow shows the direction whence the light is proceeding, the sun having now ascended to that angle above the horizon. The point where the arrow breaks indicates the sunlight impinging upon the surface of the water, and being thence reflected upward and carrying with it the shadow of the mill, which must necessarily ascend as the sun does.

In the fourth illustration we have a still more complete example of specters in the air,

so located as to intercept the lower part of the shadow only, and the shadow of the "top-hamper" passes over it, and when intercepted by some other cloud becomes visible also. For these reasons and others, "the phantom ship" or "Flying Dutchman" sometimes inspired terror by mysteriously going to pieces, and at others disappearing by sinking into the ocean, or appearing by ascending from it; and the mystery was deepened by some of the top-sails only appearing above the sea at times and then sinking back into it. These were cases where the rising sun cast a long shadow of the ship over the water, and a fog-bank happened to be on the surface where the shadow of the top-sails fell upon it. The rest of the shadow, being projected upon the water, was invisible; and as the sun rose the shadow disappeared by sinking. This phase of the mirage required a peculiarly exceptional combination of sunlight, sea, and cloud for its production, and is therefore rare.

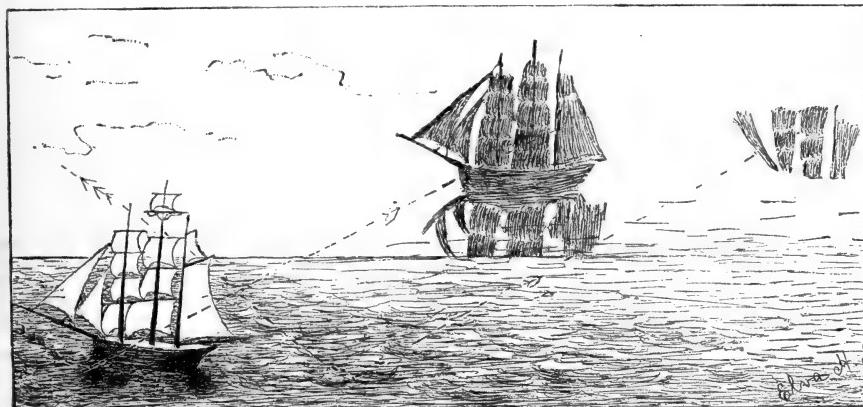


FIG. 4.—FLYING DUTCHMAN.

the "Flying Dutchman," which has so long foreboded disaster in cabin and forecastle. In order to condense into one illustration, we have shown in Fig. 4 two separate instances of the mirage. The broken arrows represent the sunlight striking upon the surface of the water and reflected from it. One arrow shows reflection from the sunward side of the ship, projecting a shadow of the vessel, which is right side up, and a part of the reversed shadow that would come from the water on the other side of the ship; but we have made use of the arrow which gives expression to the cause of that shadow to point to another fact that frequently occurs, that of portions of the vessel being seen in different parts of the heavens at the same time. The lower part of the hull and sail will be seen in one place, and the top-sails in another, or the wrong-side-up image is in one place, and the right-side-up somewhere else—all of which is due to the distribution of the cloud-screens: one may be

The arrow in Fig. 4 indicates how the sunlight casts a shadow of the ship, the only visible portion of which is the top-sails, which falls upon a distant fog-bank and sinks into the ocean when the sun has ascended to the angle of the dotted arrow.

An instance of this kind occurred on Lake Erie, in which the top-sails of a schooner were seen from the harbor of Buffalo just above the surface some distance out to sea, when the sun was near the western horizon, and the weather perfectly calm. Several steam-vessels were dispatched to the rescue of the possible survivors of the wreck, only to find that the top-sails had disappeared and a vessel similarly rigged was farther westward. The shadow of the schooner had been cast by the sun toward the city, and a mist resting on the water intercepted the shadow of the top-sails, the mist being sufficiently thin to transmit the image to its other side.

All of those shadows grow larger as the dis-

tance from the real object increases, because they are what is known in the science of astronomy as penumbral shadows. The sun casts two shadows of all things that are smaller than

mirage is a reflection of the sides of the objects that are toward the observer, therefore they are presented in all their variety of color, and it is what the Scotch call looming. It

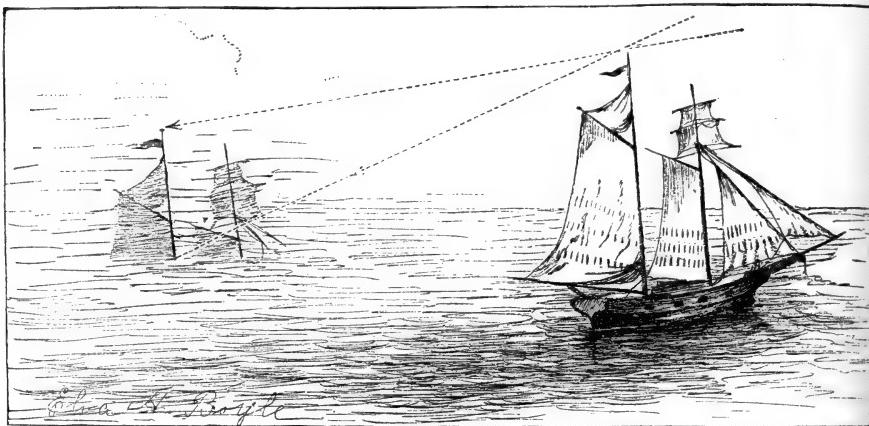


FIG. 5.—TOP-HAMPERS SINKING.

itself. A man, for example, stands upon the top of a mountain, as represented in Fig. 6. One of his shadows tapers to a point, and is the darkest because no light enters it. This is called the umbral shadow; the other grows wider as distance increases, but is less dark, because it is partially illuminated by the sun-light. This is called the "penumbral shadow," and to it are due the giants of Ben Lomond, the gigantic specter of the Brocken, ships in the air, etc.

The looming of coast-lines differs a little in

may be practically reproduced by laying a mirror down horizontally, and lowering the eye to near its plane, when low objects on the opposite side will be seen, and if a semi-transparent screen be interposed the objects will appear to be upon it, above the mirror, in the air, while the double shadow of an object may be produced, right and wrong side up, by simply setting a toy ship down upon the mirror, and holding a light so that the shadow of the toy will be cast upon its surface, then the true phantom-ship, erect and inverted, will be seen

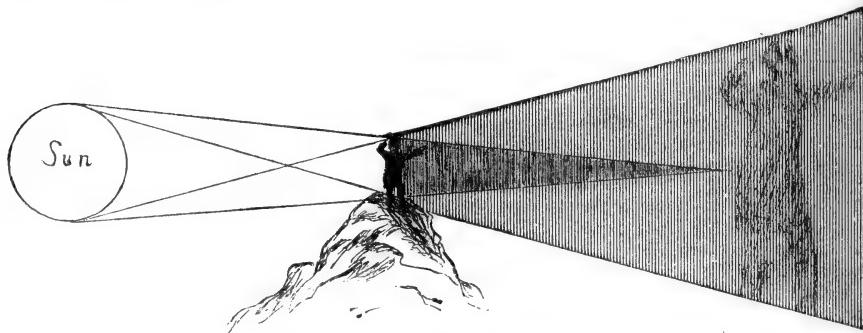


FIG. 6.—UMBRA AND PENUMBRA.

the causes of its production. The water is a horizontal mirror lying at the foot of the line of objects that it reflects at a low angle above the horizon, and an eye on the opposite side of the mirror will see those forms, provided there intervenes a screen of vapor of sufficient density to intercept and transmit the forms, just as a semi-transparent screen will transmit the images of the magic-lantern. This form of the

upon the opposite wall; or, better still, a screen of gauze, for then it will be more phantom-like.

The mirage of the desert is nothing more than the looming of the bright sky near the horizon, reflected by the sandy plains, which gives it the appearance of water at some distance from the observer, and any object rising above the plain necessarily presents its dark side, which



FIG. 7.—SPECTERS OF BEN LOMOND.

relieves it from the surface of the apparent water, and according to its modification of form gives the appearance of islands, architecture, or foliage. Sand being silica, the prime constituent of glass, is therefore a good reflecting material, and when the angle of light is low, as in this case, it assumes the brilliance of a surface of water.

Every phase of the mirage we have been reviewing has been referred by Sir David Brewster, the great expounder of optical phenomena,

ture of the reflection of light is sufficiently illustrated by a boy playing with a bit of looking-glass in the sunshine. By placing a glass prism in the path of a sunbeam, we have the illustration of both refraction and reflection, as in the figure. The prism is nothing more than a triangular piece of glass, from the surface of which a portion of the sunlight is reflected, but the greater quantity of it passes through the prism as shown by the arrow-marked refracted light. If the prism were replaced by a transparent medium, such as the atmosphere, which decreased in density from its base upward, the refraction would be in the same direction. Therefore atmospheric refraction could only deflect the image of an object downward instead of upward, and consequently images of objects on the earth's surface could not be produced in the air by refraction. If they were, the science of civil engineering, astronomy, and navigation would be impossibilities, for their accuracy depends entirely upon the telescope's seeing in straight lines whenever and wherever that instrument is brought into use, and so unchangeable is the minute quantity of refraction due to the earth's atmosphere that in all astronomical observations where precision is required it is dealt with as a constant factor. If it were in the least subject to change, exactness would be unattainable, for no astronomer could tell what condition of refraction existed in the atmosphere at the time of his observations. The same would be true of a navigator finding the position of his ship on the ocean by his quadrant, and equally true of all

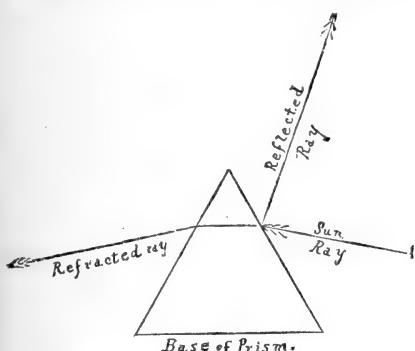


FIG. 8.—REFRACTION AND REFLECTION.

to what he calls "fits of extraordinary refraction in the earth's atmosphere." That is to say, the earth's atmosphere is subject to fits of changing density, which cause objects to appear in places where they are not. The na-

the operations of the civil engineer. Sir David Brewster, in his own illustrations, shows a displacement of forty degrees—an angle of refraction which a change in the density of the earth's atmosphere to that of glass could not come anywhere near producing. The engineers of the Suez Canal were never for a moment affected by changes of atmospheric refraction, though the mirage of the desert was of frequent occurrence.

MISSISSIPPI. State Government.—The following were the State officers during the year: Governor, Robert Lowry, Democrat; Lieutenant-Governor, G. D. Shands; Secretary of State, George M. Govan; Treasurer, W. L. Hemingway; Auditor, W. W. Stone; Attorney-General, T. M. Miller; Superintendent of Public Education, J. R. Preston. Supreme Court: Chief-Judge, J. A. P. Campbell; Associate Justices, J. M. Arnold and T. E. Cooper.

Legislative Session.—The Legislature met on January 5 and adjourned on March 18. Among the acts of the session are the following:

To provide for the payment of levee taxes by railroads in the levee district of this State.

To provide for the care and disposition of the church property of parishes or missions of the Episcopal Church in Mississippi which have no organization, or have ceased to exist.

To require State Treasurer to cover into the treasury any cash balances remaining from appropriations.

To abolish the Board of Immigration and Agriculture, and to reduce the salary of the Commissioner of Immigration.

For preventing the evils of intemperance by local option in any county in the State by submitting the question of prohibiting the sale of intoxicating liquors to the qualified voters of each county, to provide penalties for its violation, and for other purposes.

To provide for the election of Railroad Commissioners of the State.

To incorporate the British and Mississippi Valley Freehold Land and Mortgage Company, limited, approved March 16, 1884.

To incorporate the Natchez Street Railroad Company.

To secure the manufacturers and owners of railroad equipments and rolling-stock in making conditional sales, and contracts for the lease thereof.

For the preservation of the archives of the State in the office of the Auditor of Public Accounts.

To incorporate the Pensacola and Memphis Railroad Company of Mississippi.

A resolution to investigate the management of the Penitentiary, and inquire into the legality of certain contracts therin mentioned.

To provide for the extension of time of payment of certain railroad bonds of the county of Adams.

Joint resolution to appoint a committee to investigate the affairs of the Yazoo-Mississippi Delta Levee Board.

To prevent stock from running at large in certain counties.

To repeal chapter 151, acts 1884, relating to hunting upon the lands of another with dogs or gun, in certain counties.

To encourage the planting of oysters and for other purposes.

To define and punish the crime of teaching polygamous doctrines and principles, and of persuading persons to adopt or embrace the same.

Supplemental and amendatory to an act to regulate the practice of dentistry in this State, approved Feb. 25, 1882.

To create and define the Pascagoula timber district, and for the election of a timber inspector therein, composed of certain counties.

To incorporate the Kansas City, Memphis, and Birmingham Railroad Company.

To encourage and facilitate the construction of telegraph and telephone and other like lines in the State of Mississippi.

To amend the law in relation to receivers.

To create a board of control for the Penitentiary.

To provide for an efficient remedy for the exercise of the right of eminent domain, and to give the citizens an impartial hearing in such cases.

To authorize the issuance of bonds to raise money for the cancellation of the indebtedness of the State contracted in the establishment of various educational and charitable institutions.

To authorize the consolidation of the Louisville, New Orleans, and Texas Railway Company with the Memphis and New Orleans Railroad and Levee Company.

To amend an act entitled an act to provide for the abolishing of the Liquidating Levee Commissioner, and the suspension of liquidating levee tax, as soon as it will be ascertained that the debt for which said tax was imposed has been paid.

To require steamboats, tugs, and other vessels propelled by steam, navigating Pascagoula and Dog rivers, to provide spark-arresters.

To incorporate Natchez College.

Relating to the competency of witnesses.

In relation to passengers on railroad trains paying full fare and purchasing first-class tickets and riding in first-class cars.

To secure the assessment of lands purchased from the United States.

To provide the manner of selling the sulphate and other preparations of morphine.

To provide for amendments in criminal proceedings in regard to appeals from justice courts.

To incorporate the Vicksburg, Yazoo-Delta, and Northeastern Railway Company, and to declare its powers.

To amend sections 557 and 585, Code of 1880, so as to increase the public revenue, and provide for the faithful collection of the same (new privilege tax law).

United States Senators J. Z. George and E. C. Walhall (Democrats) were re-elected. On March 12, William McWillie, J. F. Sessions, and J. C. Kyle were chosen Railroad Commissioners, to succeed the former board, which consisted of John M. Stone, William McWillie, and W. B. Augustus.

The principal provisions of the general local-option act are the following:

That, upon application by petition, signed by one tenth of the voters who are qualified to vote for members of the Legislature in any county in the State, addressed to the board of supervisors of said county, it shall be the duty of the board of supervisors to order an election, to be held at places of holding elections for members of the Legislature in such county, to take place within forty days after the reception of the petition to determine whether or not such spirituous liquors as are mentioned in the sixth section of this act, shall be sold within the limits of any such county: *Provided*, That no election held under this act shall be held within less than two months of any county, State, or national election held in such county, so that such elections as are held under this act shall be separate and distinct from any other general election whatever: *Provided, further*, That the board of supervisors shall determine upon the sufficiency of the petition presented by the county registration-books of the year before.

That, if the result of any election held under the provisions of this act shall be for or against the sale,

then no other election shall be held in the same county in less than two years thereafter, and then only upon a new petition as aforesaid, and by otherwise conforming to this act.

That, if a majority of the legal votes cast at any election held under the provisions of this act shall be against the sale, it shall not be lawful for any person within the limits of such county to sell or barter for valuable consideration, either directly or indirectly, or give away, to induce trade at any place of business, or furnish at other public places, any alcoholic, spirituous, vinous, malt, or intoxicating liquors, or intoxicating bitters, or other drinks which, if drunk to excess, will produce intoxication, under the penalties hereinafter prescribed; but, if a majority of the votes cast at any such election shall be for the sale of such liquors, then license to sell the same may be ordered by the board of supervisors of the county at a regular term, or by the proper municipal authorities, to any male person over the age of twenty-one years, when such applicant is a resident in the county where such liquors are to be sold, who, in the opinion of the authority granting such license, shall be of good moral character and a sober and suitable person to receive such license, by the recommendation to that effect in writing, signed by at least twenty-five real-estate owners in such district or town.

That any person who shall violate the provisions of this act shall be guilty of a misdemeanor, and shall, on conviction, be punished for the first offense by a fine not exceeding fifty dollars, and by imprisonment in the county jail not exceeding sixty days; and for the second offense by a fine of one hundred dollars and imprisonment in the county jail for four months; and for the third, or other offenses, by a fine of five hundred dollars and imprisonment in the county jail for six months. The selling of liquors in violation of this act shall also be a nuisance, and the same may be abated by an appropriate proceeding at law, or enjoined on the application of any citizen of this State by chancery court of the proper county, and there shall be no property in any intoxicating liquors kept or offered for sale in violation of law.

That nothing in this act shall be so construed as to prevent the manufacture of wine or cider for domestic or sacramental purposes, nor shall anything herein contained prevent licensed druggists from selling or furnishing pure alcohol for medicinal, art, scientific, or mechanical purposes; and for every sale of wine the seller shall be guilty of a misdemeanor, and may be punished as provided by section 8 of this act in reference to violations thereof, and nothing herein contained shall prevent physicians of good standing in this State from keeping vinous, spirituous, or malt liquors for use in their practice, and dispensing the same for the use of their patients: *Provided, however,*, no such liquors shall be kept by physicians at any drug-store or other public place, or disposed of in quantities of more than one pint, and it shall be unlawful for them to sell it at all.

The act in relation to free schools provides for a uniform system of free schools for all children between five and twenty-one years of age. The Board of Education appoints county superintendents, with the advice and consent of the Senate. The county superintendents are to hold separate teachers' institutes for the two races. A board of three trustees for each school is elected by the patrons thereof. The scholastic year begins on October 1, and ends on September 30. There is to be a winter term to begin in November, and a summer term to begin in June, during either of which a school may be taught at the option of its trustees. The schools are all to be kept in continuous session for four months, provided

that in thinly settled districts the trustees and county superintendent may change this rule, and for as many days longer as the school funds for that scholastic year will pay for.

Whenever the amount of school fund in the State treasury in any fiscal year does not, in the aggregate, amount to \$300,000, exclusive of Chickasaw or other special funds, then the State Treasurer is to transfer from the general fund to the common-school fund a sufficient amount to make the sum of said school fund \$300,000, said sum to be distributed upon warrants of the Auditor among the several counties pro rata, according to the number of educable children in said counties.

It is to be the duty of the board of supervisors of each county in the State, on or before the first Monday in September, annually, to levy upon the taxable property of such county a tax of three mills or more on the dollar, to be collected as other county taxes for general purposes and at the same time, and to be paid into the county treasury to the credit of the common-school fund, to make up any deficiency in the aggregate amount of common-school funds arising from other sources necessary to maintain the public free schools of said county during the time required by law.

Political.—The only general election during the year was for members of Congress. It occurred on November 2, and Democrats were returned as successful in all of the seven districts.

Negro Emigration.—About the middle of November, after the cotton-picking, an extensive movement of colored people began from the hill country of Mississippi to the river-bottoms, or, as the land along the Mississippi and Yazoo is called, the Swamp. The movement began in the western portion of Hinds County, which is on the edge of the hills, and but a short distance from the Swamp. By the middle of December the exodus had reached such magnitude as to become a serious economic question. The great majority of the labor on the cotton-plantations in Hinds and Rankin is colored, and the loss of this labor threatened the destruction of that industry. On several plantations all, or very nearly all, the tenants emigrated, leaving the planters with nothing but their land, with no one to cultivate it. Nearly all the emigrants go to the Yazoo country. Some few have crossed over into Arkansas, into Desha and Chicot Counties, to which the tide of negro immigration from the Atlantic States has been pouring for three years. But most of the Mississippians have remained in Issaquena, Sharkey, Washington, Bolivar, Yazoo, Leflore, and other counties of the Yazoo delta. This country is all alluvial, is level, intersected by innumerable streams, which run into one another in so intricate and labyrinthine a manner as to make it a land of thousands of islands. It is in danger of overflow during high water in the Mississippi; but is fully protected from inundation by a thorough and

complete system of levees, constructed within the last three years. The land is the best in the State for cotton, raising from three fourths to a bale an acre, and cotton is almost exclusively cultivated. In consequence of the danger from overflow, the delta is still thinly populated, less so than other portions of the State, the average amount of land in cultivation being only twelve acres per square mile, although all of it is tillable and fertile.

The negro question threatens to play as important a part in this section of the State as in the coast counties of South Carolina, for the delta is becoming blacker and blacker. In the decade between 1870 and 1880 the negro population of this region increased 115 per cent., while the whites made very little advance. This was when the levees were down. Now that they are up, and the colored exodus has set in that direction, this race increase must be even more rapid. The delta or swamp has always been a negro district. In some counties—Issaquena, for instance—the population is ten negroes to one white, and in certain districts the disproportion is even twice as great. There are to-day 235,000 negroes in the Yazoo delta or swamp, to perhaps 30,000 or, at most, 35,000 whites—nearly eight to one—and the disproportion is growing yearly, monthly, daily greater. On the other side of the Mississippi, in the Tensas district of Louisiana, the population stands ten negroes to one white, and in the Arkansas district adjacent four negroes to one white. Here, in the very heart of the lower Mississippi country, is an immense fertile region, as large almost as Indiana, which is rapidly becoming Africanized and being given over wholly to the negro. Whatever movement of the negro population there is in the South to-day tends in that direction. And this movement is only begun, for the colored people are just learning how to emigrate successfully. Around Greenville, Miss., as a center, are collected nearly half a million negroes, to 60,000 or 70,000 whites.

"The exodus," says a correspondent, "has undoubtedly improved the condition of the negroes in the upland country. The planters are anxious to keep them at home, and are consequently giving them better terms. Some of the shrewd negroes in Monroe, an upland county, thought the present a very favorable time to put in their demands. A colored convention was held, at which resolutions were adopted declaring it to be the sense of the meeting that the rent of the lands should be paid in the crops raised thereon, thus dividing the risk of the rise and fall in products between the landlord and tenant; that the leases should be for long terms, and that the tenants should keep up the ditches, fences, and improvements, and that the cotton-seed and other fertilizers produced by the tenants should be placed on the land. A committee of colored men was appointed to consult with the land-owners to see if these terms could not be carried out.

The demands for longer leases, or a division of the crop raised, for the use of cotton-seed for fertilizing the land instead of its sale to pay the rent, are just and proper, and, as the land-owners just now are anxious to keep their negro tenants at home and prevent their emigration, there is every likelihood of their being agreed to.

"As far as the hill country of Mississippi is concerned, the present emigration movement of negroes promises to make it more a grain, fruit, and dairy than a cotton country, and to improve the condition of the negroes remaining behind, by decreasing the quantity of floating labor that has kept wages low."

This movement was, doubtless, hastened by the failure of the cotton-crop in the hills this year, but it has its root in dissatisfaction on the part of the colored people with their condition. Although the chief emigration occurred during the last two months of the year, the movement is not new, but has been going on for more than a year. There has always been a tendency on the part of the negroes to drift to the Swamp, where cotton is more prolific and more generally cultivated, and where the climate and society are more pleasant to them. The rebuilding, two years ago, of the levees along the Yazoo front suddenly gave a vigorous impetus to this negro migration. Hundreds of thousands of acres of land which had been abandoned on account of the danger from overflow, were redeemed by these levees, old deserted plantations were reopened, and new ones laid out. Moreover, many Western capitalists, invading the Yazoo bottom, found it filled with the largest and finest timber in the South, and purchased extensively, near a million acres of woodland having been taken up by them within the past three years. All this, the increased acreage under cultivation, the mills erected to saw this timber, naturally caused a demand for labor, and that labor is being supplied by the negroes of the adjoining hill country.

MISSOURI. State Government.—The following were the State officers during the year: Governor, John S. Marmaduke, Democrat; Lieutenant-Governor, A. P. Morehouse; Secretary of State, Michael K. McGrath; Treasurer, James M. Siebert; Auditor, John Walker; Attorney-General, D. G. Boone; Land Register, Robert McCulloch; Superintendent of Public Schools, William E. Coleman; Railroad Commissioners, George C. Pratt, James Hardinge, and William G. Downing; Superintendent of Insurance Department, Alfred Carr. Supreme Court: Chief-Justice, John W. Henry; Associate Justices, Thomas A. Sherwood, Elijah H. Norton, Robert D. Ray, and Francis M. Black.

Finances.—The following are the estimates for the years 1887-'88: Interest on debt, \$1,485,920; sinking-fund, \$500,000; civil list, \$641,550; eleemosynary and educational institutions, \$530,200; assessing and collecting the revenue,

\$300,000; costs in criminal cases, \$500,000; maintenance of public schools, \$950,000; pay and contingent expenses of the General Assembly, \$145,060; sundry small appropriations, \$210,080—total, \$5,262,750. The revenues under the present levy of 40 cents on the \$100 will largely exceed that sum; but as the surplus can all be profitably used in retiring 6-per-cent. bonds at par, the Governor does not deem it wise to alter that levy.

On Jan. 1, 1885, the outstanding bonded debt of the State was \$11,803,000, bearing 6 per cent. interest, of which \$3,000 matured and was paid in 1885. After advertising for offers of bonds to absorb the sinking-fund, the board, on May 4, 1885, purchased 441 bonds at a cost of \$549,781.30, including interest; and on Oct. 2, 1885, they purchased 53 bonds for \$65,235.03, including interest. The bonds maturing in 1886 amounted to \$2,129,000, which sum was largely in excess of the resources of the sinking-fund. To provide for this excess, the General Assembly passed a bill authorizing the Fund Commissioners to issue 5-20 funding bonds from time to time, as the necessity arose. On March 17, 1886, Pacific Railroad bonds matured amounting to \$1,081,000. To meet this demand the board sold and issued, under the funding act, 650 of the new 5-20 funding bonds, bearing 3½ per cent. interest, and dated March 15, 1886. On this sale they realized a premium of \$12,538.50, making the proceeds \$662,538.50. The balance of the \$1,081,000 was paid out of the sinking-fund. On June 13 the commissioners paid \$75,000 North Missouri Railroad bonds maturing on that day, and on August 22, \$120,000 North Missouri Railroad bonds maturing on that day, both out of the sinking-fund. On September 5, \$391,000 North Missouri Railroad bonds matured, and on November 10, \$462,000 Hannibal and St. Joseph Railroad bonds matured. To meet these demands the board sold and issued 300 of the 5-20 bonds bearing 3½ per cent. interest, dated Sept. 1, 1886, for \$308,703.69, and 400 similar bonds dated Nov. 1, 1886, for \$410,520. The balance of the demand was paid out of the sinking-fund. The total amount of 3½ per cent. funding bonds sold is 1,350, on which premiums amounting to \$31,762.19 have been realized. Of the \$11,803,000 of 6-per-cent. bonds outstanding Jan. 1, 1885, \$1,276,000 have been paid out of the sinking-fund; \$1,350,000 have been funded at 3½ per cent., and \$9,177,000 still bear 6 per cent. Provision has been made for funding \$928,000 Hannibal and St. Joseph Railroad bonds falling due Feb. 28, 1887, and \$649,000 Pacific Railroad bonds maturing March 10, 1887, by the issue of 1,577 bonds bearing 3½ per cent. dated March 1, 1887.

The interest on the entire State debt has been promptly paid, including the January, 1887, interest.

The school fund indebtedness consists of one certificate of \$2,909,000 bearing 6 per cent.

interest, payable annually, January 1, and three certificates aggregating \$225,000 bearing 5 per cent. interest, payable semi-annually January 1 and July 1. The seminary fund consists of one 6-per-cent. certificate of \$122,000, interest payable annually, and one of \$100,000 bearing 5-per-cent. interest payable semi-annually. The Agricultural College fund consists of three certificates aggregating \$297,000, bearing 5-percent. interest payable semi-annually.

A large part of the State debt falls due in the next two years (\$6,652,000). The public schools are maintained at the cost of \$5,000,000 a year.

Penitentiary.—The following statement covers the whole of the two years 1885 and 1886: Earnings from contract-labor, \$235,044.71; earnings from sale of brick, stone, etc., \$17,143.34; daily average earning of each inmate, 21·36 cents; daily average cost of each inmate, after deducting earnings, 13·09.

Costs in Criminal Cases.—On this subject, the Governor, in his message to the Legislature of 1887, says: "The costs in criminal cases are rapidly becoming enormous, and threaten to become burdensome. Although the appropriation for 1885 and 1886 was \$400,000, it was exhausted in August, and there have since been incurred costs amounting to more than \$100,000. It is estimated they will amount to \$500,000 in 1887 and 1888."

High License.—Prior to the enactment and enforcement of the law providing what is known as "high license" for dram-shops, there were in the State 3,601 dram-shops and other places where ardent spirits were sold to be used as a beverage, yielding a revenue of \$547,820.30. There were on the 4th of July last 2,880 such dram-shops, yielding a revenue of \$1,842,208.26. "These figures," says the Governor, "clearly indicate that the law referred to is accomplishing the good result that was anticipated, and, I think, prove the wisdom of it. There are imperfections in the present law which ought to be corrected. I am of the opinion that the traffic in whisky is not sufficiently limited; that it ought to be restricted to those who have paid the "high license" of a dram-shop keeper, and that druggists and merchants should not be allowed to sell it in any quantities whatever, except upon the prescription of a reputable physician for medicinal purposes. What are known as 'gallon-houses' should be abolished. Every one who desires whisky or other ardent spirits as a beverage should be compelled to purchase it at those establishments which, under our high-license law, are placed within competent police regulations."

State Military.—On this subject the Governor says: "The military law now on our statutes is utterly inadequate to the purposes intended in its enactment—the organization and maintenance of a well-ordered citizen soldiery. I have already, in a different connection, stated that 'I think this State should make ample provision for the care and protection of her

own citizens and their property, and not depend upon either the Federal Government or other State governments for our safety.' To this end, such a military organization is essential. The two most glaring imperfections in the present law have been illustrated within the last two years. The imperfections alluded to are: First, absence of any provision for paying the soldiers when in the service of the State, or even to meet the expense necessarily incurred in their movements when on duty; and, second, absence of proper and efficient methods of enforcing discipline at all times when discipline is needed. The inconvenience and injustice resulting from the first of these deficiencies in the law were made apparent when the military was called upon by me during the strike of March, 1885. The necessary and proper expense incurred in its movements was paid by me out of an appropriation, subject to my order, for a similar purpose—but much too small for even that purpose—and the fair, reasonable, and legitimate pay of the soldiers, amounting to \$2,360.28, is yet unpaid. The existence of the second defect alluded to was developed in a trial in one of the circuit courts for Jackson County, the court holding that a court-martial ordered for the trial of an officer was without lawful authority because the statute upon which it rested was unconstitutional."

Charitable Institutions.—The State supports a school for the deaf and dumb, a school for the blind, and three lunatic asylums (at Fulton, St. Joseph, and Nevada).

Political.—The Democratic State Convention met in St. Louis on August 19, and nominated Theodore Brace for Judge of the Supreme Court, William E. Coleman for Superintendent of Public Instruction, and John B. Breathitt for Railroad Commissioner. The following platform was adopted:

The Democratic party of Missouri congratulate the country upon the fact that after the most thorough and practical test of the fundamental principles of the Democratic party, upon which Grover Cleveland was elected, it can now declare its renewed faith in those principles and most heartily indorse the firm and conscientious manner in which President Cleveland has given to the country a wise and patriotic administration, reforming the glaring abuses that had crept into the administration of the public service under his Republican predecessors.

We indorse the wise and economical administration of Gov. Marmaduke, and we refer with pride to the fact that in this State, which has been frauded, for political purposes by its enemies as "the Robber State," that nowhere are the rights of the citizen more sacredly guarded, as the best refutation of such slanders, and, if additional evidence is needed, it is furnished by the fact that our bonds bearing 3½ per cent. interest command in the money markets a premium of 3 per cent.

We, therefore, with confidence present the following declaration of principles:

1. In accordance with the time-honored principles of the Democratic party, we declare that the Federal Government is one of limited power, that the powers not delegated by the Constitution to the United States, nor prohibited by it to the States, are reserved to the States respectively or the people; that the maintenance of this just equilibrium as to the powers dele-

gated and those reserved is essential to the perpetuity of our dual form of State and Federal Governments, and that Congress in the exercise of its functions should confine its actions strictly within the limits of the constitutional grant; that the authority to levy and collect taxes and duties on imports was intended to vest in the General Government the power of raising the money necessary to meet its expenses, and is, by the express terms of the Constitution, limited to the purposes of paying the expenses and obligations of the Government. We therefore deprecate the prostitution of the taxing power, under any pretext or guise whatever, to objects and purposes other than the raising of revenue, or to the purpose of effecting indirectly legislation as to subjects over which Congress has no control, as such legislation tends inevitably to consolidation and a destruction of the reserved rights of the States, and that the building up of one industry by a tax on or at the expense of another, is foreign to the true aims of a free government, in which all the people, as to their legal rights, stand on an absolutely equal footing.

2. We believe in honest money, the gold and silver coinage of the Constitution and a circulating medium convertible into such money without loss; and we demand at the hands of Congress the free and unlimited coinage of both gold and silver.

3. We demand that all surplus money in the treasury shall be applied to the payment of the interest-bearing debt.

4. We approve the action of the Democratic House of Congress in forfeiting and restoring to the public domain, for homesteads for actual settlers nearly a hundred million acres of unearned lands heretofore granted by Republican Congresses to railroad corporations, and we also approve the act preventing alien ownership to large tracts of public lands in the United States.

5. It is the deliberate judgment of the Democratic party of Missouri that in their very nature, as well as by the provisions of our State Constitution, the railroads of the State are public highways, many of which were built by public taxation; that both the right and duty of the State to regulate and control these highways is clear and can never be abrogated; that the wise provisions of our Constitution as to discrimination in freight and passenger rates by railroads; against competing lines being under one management; against the giving of lower or reduced rates to public officers; against such corporations engaging in other business and their officers furnishing supplies to such railroads, together with other requirements of our Constitution, shall be supplemented by stringent laws carrying them into effect; and we demand of the next General Assembly the passage of all such necessary laws, with such penalties as will insure their due observance. We further declare that rates should be so adjusted on freights as to give the railroads a fair and just remuneration on the service performed and the money actually invested, exclusive of watered or fictitious stock; that our Board of Railroad Commissioners should reduce all present rates to such standard, and if the powers of the board are inadequate to that end, that such further authority be given it; that we demand that our present laws be so amended as to give the board the power to enforce such rates when fixed, and the shipper also a clear remedy for all wrongs; we further favor necessary legislation for the speedy and equitable settlement of all disputes or differences that may arise between railroad companies and their employés.

6. The Democratic party, which originated the public-school system in Missouri, stands pledged to maintain popular education in the State.

7. We heartily sympathize with the Irish people in their heroic efforts against oppression, and to secure to themselves a local government, free from the oppression of landlordism, a relic of feudalism.

The Republican State Convention met at Sedalia on September 1, and nominated John

K. Cravens for Judge of the Supreme Court; H. K. Warren, for Superintendent of Public Instruction (for whom E. A. Cochran was substituted); and J. W. Hitchins, for Railroad Commissioner. The following is the platform adopted :

The Republicans of the State of Missouri, in convention, assembled hereby declare :

1. That the lapse of time and constant experience in the conduct of public affairs for a quarter of a century have only served to strengthen and intensify our allegiance to those principles of self-government that have ever been the guiding star of the Republican party of the nation.

2. The record of the national Administration for the past eighteen months has proved the unfitness of the Democratic party to rule, not only by its utter failure to keep the promises made to the people during the campaign of 1884, but by its failure to originate any measures of relief whereby the expenses of government can be reduced, or the relations of capital to labor more equitably adjusted, or by any other beneficial measure in the interest of the people. It promised to be the friend and advocate of civil-service reform; it has lost no opportunity to cripple the efficiency and thwart the efforts of the commission who have charge of that reform, and has made civil-service reform odious by not only removing, but attempting, in utter disregard of justice, to blacken the character of thousands of our best citizens, many of them old soldiers who have been removed under the cowardly subterfuge of offensive partisanship. It promised that the expressed will of the people should be obeyed. President Cleveland has vetoed more bills passed by Congress during the last session than were ever vetoed before by all the Presidents of the Republic together since its foundation. It promised a reduction in the number of Government officials. It has largely increased the number of the employés of the departments at Washington. It promised tariff reform. It has utterly failed, even under the pressure of presidential and Cabinet influence, to agree on such a measure, much less to pass it in the body where they have an overwhelming majority. We are therefore presented with the spectacle of an Administration, whose term of office is already more than one third gone, that has utterly failed to redeem even the least of the pledges by and through which it came into power.

3. As we turn to the Democratic administrations that have dominated Missouri for the last fifteen years we find, if possible, still less cause for congratulation. From the day of the adoption of the enfranchising amendment sixteen years ago, the old familiar rebel yell has swept the conventions of the Democratic party like a prairie fire, until Union Democrats, who were only here and there briefly given office for a purpose, are cast aside, and no pretense is made of nominating a Union man where there is a possible chance of electing an ex-Confederate, until the calling of the names of Democrats holding offices in the State of Missouri sounds to-day like calling the roll of the ex-Confederate army. We charge the Democratic party with having permitted abuses in the matter of transportation by refusal to pass effective laws for the regulation of railroads, protection alike to the companies and the people which has led to pooling, to the abrogation of all competition and to rates so burdensome that the aggregate charges exceed annually those made for like extent of service in States similarly situated by an amount equal to all taxation for State government, and which, while creating a vast monopoly threatening to the welfare of our commerce and industry, has driven competition into adjoining States, stimulating their progress and development at our expense. We arraign them also for the refusal of officers of their selection to enforce such crude laws as they enacted when appealed to by the people, and for

their submission to the depression of important industries by extortionate discriminations which such enforcement might prevent. The fact that the chairman of their Executive Committee is vice-president and general manager of a great railroad, and that seven members of their State Committee are railroad attorneys, proves that they have no intention of fulfilling their hollow pledges in that respect. To the reform of these abuses and to the adoption of measures to promote the progress and development of our commerce and industry the Republican party stands pledged.

4. We charge them with utterly ignoring, especially in Democratic counties, those wise provisions of law requiring public work to be given to the lowest responsible bidder, and bestowing those favors on party friends for party services, regardless of those principles of economy and reform by which they have always appealed to the people before an election. We charge that whatever of good has occurred to the State of Missouri during the continuance of Democratic ascendancy has occurred in spite of that ascendancy and not as a result thereof. We recognize the right of intelligent organization of labor for mutual education and for the protection of laborers in all things pertaining to their material welfare, and the promotion of the industries of the country. And we favor the enactment of laws, State and national, for the speedy and equitable adjustment of all disputes and controversies arising between employers and employés, so as to avoid the demoralization and waste of strikes, and for the promotion of the welfare and elevation of all working-people.

5. We favor the granting of generous pensions to the disabled veterans of our wars, whether for the country's defense or for the preservation of the Union, and we denounce the present national Administration, not only for its vetoes of meritorious measures for the relief of soldiers and soldiers' widows and orphans, but for the unfeeling and insolent terms in which those vetoes are expressed. We also protest against the removal of Union soldiers from office to make room for partisan civilians and ex-Confederates.

6. We denounce the Democracy in Congress for its flagrant violation of every principle of justice and fairness in refusing to admit Dakota to the sisterhood of States.

7. We reaffirm the sympathy which the Republican party has always held for the oppressed of every land, and especially with the Irish people in the struggle now in progress for the right of self-government; their cause is just, and should not appeal in vain to us.

8. Resolved, That whenever a respectable number of the citizens of the State shall petition the Legislature for the submission of any proposition to amend, change, or modify the Constitution in any matter which is a proper subject of organic law, their request should be granted.

9. And finally, the Republican party of Missouri pledges itself anew to those cardinal principles which have controlled it for a quarter of a century—protection to American labor, protection to the American voter, protection to the American tax-payer, protection to American citizens at home and abroad, and to a firm, candid, liberal, and enlightened conduct of public affairs on all subjects affecting the rights and interests of the American people.

The eighth resolution was intended to cover the case of a prohibitory amendment, and is a substitute for a more pointed declaration submitted by a majority of the committee on platform.

The Greenback-Labor party and the Prohibitionists also had tickets in the field. On November 2 the Democratic ticket was elected. The following was the vote for Supreme Court Judge: Democratic, 229,125; Republican, 178,490; Greenback, 12,430; Prohibition, 3,504;

scattering, 274. The proposed constitutional amendment relative to taxation for roads and bridges was rejected, 115,485 votes being cast for and 194,338 against it. Twelve Democrats and two Republicans (Fifth and Thirteenth Districts) were elected to Congress. The Legislature consists of 24 Democrats, 8 Republicans, and 2 Labor-men in the Senate, and 85 Democrats, 50 Republicans, 3 Independents, and 2 Labor-men in the House.

MONTANA. Territorial Government.—The following were the Territorial officers during the year: Governor, S. T. Hauser; Secretary, William B. Webb; Treasurer, D. H. Weston; Auditor, J. P. Woolman; Superintendent of Public Instruction, William W. Wylie; Attorney-General, William H. Hunt; Supreme Court: Chief-Justice, D. S. Wade; Associate Justices, W. M. J. Galbraith and C. R. Pollard.

Drought and its Effects.—The Governor, in his report to the Secretary of the Interior, dated September 27, says: "Many interests have suffered greatly. Agriculture has been almost a failure; certainly not over half a crop has been raised. The long-continued drought (there having been little or no rain for over three months), and the fact that the fall of snow last winter was less than half of the usual amount, resulted in drying up many of the streams; consequently it has been difficult to procure the necessary water for irrigation, without which it is impossible to raise crops in this Territory, save possibly in one or two localities. A great portion of our many valleys along the larger streams and rivers will not be utilized for agricultural purposes until there has been a proper system of irrigating canals built. With these even the drought of this year would not affect our crops. Irrigating canals, however, are expensive, and their construction will be greatly retarded, if not indefinitely postponed, if the desert-land act is repealed. But the most serious of all losses, the full extent of which it is impossible as yet to estimate, is that of our natural grasses—our sole dependence for the vast herds of cattle, horses, sheep, and other stock, both winter and summer. Our ranges are already bare, or so nearly so that our stock is in poor condition for the winter, and, should it prove long and severe, great loss must inevitably follow. Another loss that has been greatly increased this year by the extended drought is the fearful destruction of our mountain forests by fire. These fires occur every summer. They originate generally from carelessness of hunters and campers (white or Indian), sometimes from lightning. In former years the destruction has been comparatively limited. This season they have prevailed generally, covering immense districts. More timber has been destroyed in the past six months by fire than would supply the wants of our people for fifty years, and more than will be renewed by growth in a generation. While the season has been so generally unfavorable for ranchmen,

farmers, and stockmen, the owners of sheep were fortunate in passing the winter with little loss, saving a large crop of lambs and shearing a large clip of wool, and realizing therefor, on an average, five cents a pound better price than last year. Considering both the increase of yield and price, the amount realized this season from wool alone will be from \$300,000 to \$400,000 greater than ever before."

Increase of Stock.—On the basis of an estimate made last year, counting the large natural increase of last spring and the heavy importation before the drought began, the cattle must number 1,500,000, horses 130,000, and sheep 2,000,000. In favorable seasons even twice this amount of stock could be nourished on the natural growth of grass through winter and summer, but the experience of this year shows that the limit of safety is reached until there is a reduction of the reservations. More attention is being given to the improvement of the quality of stock by imported breeds, and in raising grain, tame grasses, and vegetables for stock-feed.

Growth and Progress.—There are no accurate data to ascertain the growth of population from year to year. In 1885 the Governor estimated it at from 100,000 to 110,000, and the steady increase of the population of the cities, the extension and development of mining enterprises, and the construction of railroads, with a gradual increase of those engaged in every other enterprise, justify the estimate that the permanent population has increased 10,000 during the year, making it now about 120,000. Montana must depend largely upon the development of its mines for the permanent growth of its agricultural interests.

Railroads.—The question of transportation underlies all others in the development of Montana. Its products, whether of mines or stock-ranges, are bulky and heavy. The rivers give some outlet for portions of the year, but railroads must be the chief reliance. The Northern Pacific has about 800 miles of its main line within the Territory, and has barely begun the work of building branches to the mining centers. The Union Pacific has a branch within the Territory, doing a large and profitable business. Other railroads are on their way thither. One of these, the Manitoba, has reached the eastern border of the Territory, and is seeking a right of way across the Indian reservation north of Missouri river. With confidence that the difficulties in the way will soon be removed, that company has been constructing road-bed within the central portions of the Territory, which it hopes to connect in another year with the work advancing from the east. Other roads are approaching the southeastern border by the way of the Black Hills through Wyoming.

Metal Products.—The low prices of silver and copper during the season naturally checked the working of mines and discouraged the opening

of new ones. The Governor estimates the products of the mines of Montana for 1885-'86 as follow: Gold, \$3,450,000; silver, \$9,600,000; copper, \$8,000,000; lead, \$1,250,000; total, \$22,300,000.

Coeur d'Alene Country.—Considerable interest is felt among the people of Montana for the annexation of a small and narrow portion of the so-called Pan-handle of Idaho. It is separated from the rest of Idaho by almost insurmountable natural barriers, and it is united to Montana by Nature and the strongest ties of community of tastes, customs, and interests. It is wholly a mining section, settled largely by former residents of Montana, and developed largely by Montana capital. The people living there, it is said, almost unanimously desire annexation.

Indian Raids and Reservations.—“Between the reservations north of the Missouri,” says the Governor, “and still more from the tribes in the British possessions and the Crow reservation in the southeastern part of our Territory, continual raids are being made back and forth through a settled portion of Montana, for the purpose of stealing, or under the pretext of reclaiming stolen horses. If unsuccessful in getting Indian horses, they have little scruple in taking those of our settlers, and in either event all of such parties subsist by killing the cattle of our settlers, as there is no game. It is a heavy tax, which our people ought not to be compelled to bear, and will not always patiently submit to, no matter what the consequence. It must be evident, from very little consideration, that it will not be politic to create any permanent Indian reservation on or near the border-line, that Indians can commit these depredations on either side and escape so readily from their pursuers. International difficulties will necessarily ensue, so tedious and unsatisfactory, as well as troublesome and expensive. I hope this fact will be impressed upon the members of the commission appointed to negotiate for the reduction of the reservations and the settlement of the Indians in severality. If the Indians could be induced to go to the Indian Territory, it would be the most satisfactory disposition to all concerned. If the Indians are to subsist by agriculture and become civilized and self-sustaining, a country farther south, with more natural rainfall, would suit them better.”

Public-Land Surveys.—The Northern Pacific Railroad is completed, so far as Montana is concerned. The original act creating this corporation and subsidizing it with a dowry of land, contemplated that the survey of the land thus granted should progress as the road was completed. This obligation of the Government has been neglected. The company has not cared to have its lands surveyed until there was a demand for them. Now that these lands are taxable as soon as designated by survey, it becomes the interest of the people in all of the counties in which these lands lie to have them

surveyed, otherwise the law subjecting them to taxation is avoided. If the railroad is compelled to pay taxes on its land for the general improvements that enhance their value, the company will soon exert itself to find settlers and customers at reasonable prices, and thus the country will be sooner and more generally developed, and the burdens be more evenly and equitably distributed.

Changes of Land Laws.—Congress has shown a disposition to change all of the laws under which citizens can obtain titles to lands, save the homestead act. This attempt, the Governor thinks, would never be made if the members were familiar with the situation. “There is not one quarter-section in ten, on an average, in this Territory, on which a man, however industrious, could settle, rear a home, and obtain a subsistence. He must have irrigation to raise any crop. Land is of little or no value without water. The desert-land act, if only approximately carried out, is more favorable to the Government, the country, and the settlers than either of the other land acts. The Government gets as much for its poorest land as it ever received for its richest in the Mississippi valley, the country is made habitable, and the settler with his land secures the means to make it productive. Some pieces of land favorably situated can be irrigated at comparatively little cost, while other very large tracts can only be reclaimed by ditches of great length and cost, beyond the means of any single settler.” To encourage the construction of such irrigating canals by the most available means, says the Governor, is clearly and in every way to the interest of the General Government. A repeal of the desert-land act would greatly retard the settlement of the Territory.

Political.—The Democratic Territorial Convention met in Helena in the latter part of August, and nominated Joseph K. Toole for re-election as delegate to Congress. The Republican Territorial Convention was held at Butte on September 15, and Wilbur F. Sanders was nominated for delegate. The following are the most significant declarations contained in the platform:

That Montana will not have in the councils of the nation that just influence to which she is entitled until she is admitted into the Union upon an equal footing with the other States; and that efforts to accomplish so great a result have, for partisan reasons, been shamefully neglected.

That we favor such laws as will give to mechanics, miners, and laborers a first lien upon all mines and structures upon which they may perform labor.

That a board of arbitration should be provided by law, which shall have authority to determine all differences and disputes submitted to them which may arise between employers and employés, to the end that strikes and lock-outs may be avoided.

That in the Territory of Montana we favor greater strictness of official responsibility, economy in administration and legislation, and that every article of property within the limits of the statute, according to its value, should contribute its quota of taxation.

That the passage by Congress of an enactment

emasculating the functions of the Legislative Assemblies of the Territories is to an alarming and dangerous extent a denial of home-rule, and a vote of a want of confidence in their people which no past history or present danger palliates or excuses, and to our now ever-varying and rapidly expanding settlements and industries is, and will continue, an embarrassment.

We demand faithful, honest, and intelligent officers to discharge public trusts, honest and economic administration of government, cessation of appointments of carpet-baggers to office in the Territories, legislative and executive action to appreciate the value of silver and continue it as one of the measures of commercial values in the industrial economy of the world. To this end there should be created a permanent financial commission whose duty it should be by every process occurring to intelligent and far-minded men to induce the civilized nations to recognize that this great commercial measure is essential to the industries of the world and the happiness of mankind, and that our Legislature should keep the same objects in view.

We demand that the system of espionage which has been given such vigorous growth, and has been animated with such malignant purposes, shall cease, and that reports of special agents of the various departments of the Government shall be published as soon as the pretended criminals implicated can be arrested.

We demand the abrogation of those regulations which prevail relating to the cutting of timber, and that said law be administered in the liberal spirit which dictated its amendment, and that it be so amended as that the citizens of the West on lands unfit for agriculture shall, without waste, destruction, or exportation, have the free, untrammeled right to its use for all domestic, farming, mechanical, and mining purposes. And we do deny that there is any law extant whereby the Interior Department can farm out to favor any portion of the public domain for the purpose of cutting timber, but assert that the rights which that law secures are equal to every citizen, and that the regulations which propose to make it a matter of party patronage are in violation of the statute itself, and in clear contravention of the inalienable rights of American citizens.

That the diminution and entire destruction of the Indian reservations is a plain duty of the hour, and that the continued existence of them over one fifth of the geographical area of the Territory of Montana is a reproach to the civilization of the age, and we pledge ourselves to efforts for their rapid extinction.

On November 2 the Democratic candidate for delegate was elected. The vote was: Democratic, 17,990; Republican, 14,272; total, 32,162. The total vote in 1884 was 26,969, showing an increase in two years of 5,293. The Legislature is Republican on joint ballot. The following is the list of counties, with the total vote of each:

COUNTIES.	Vote.	COUNTIES.	Vote.
Beaverhead	1,459	Jefferson	2,186
Chouteau.....	1,233	Lewis and Clark.....	5,102
Custer.....	1,626	Madison.....	1,529
Dawson.....	419	Meagher.....	1,881
Deer Lodge.....	3,937	Missoula.....	2,433
Fergus.....	1,105	Silver Bow.....	5,856
Gallatin.....	3,058	Yellowstone.....	968

Dividends.—The following are the Montana dividends, in mining companies, from Jan. 1 to Oct. 31, 1886:

COMPANIES.	Amount.	COMPANIES.	Amount.
Allie	\$75,000	Elkhorn	\$50,000
Boston and Montana	150,000	Hecla	150,000
Helena M. & R. Co.	59,656	Montana Co. (Limized)	496,350
Moulton	60,000	Total.....	\$2,127,604
Granite Mountain	920,000		
Amy & Silversmith	166,508		

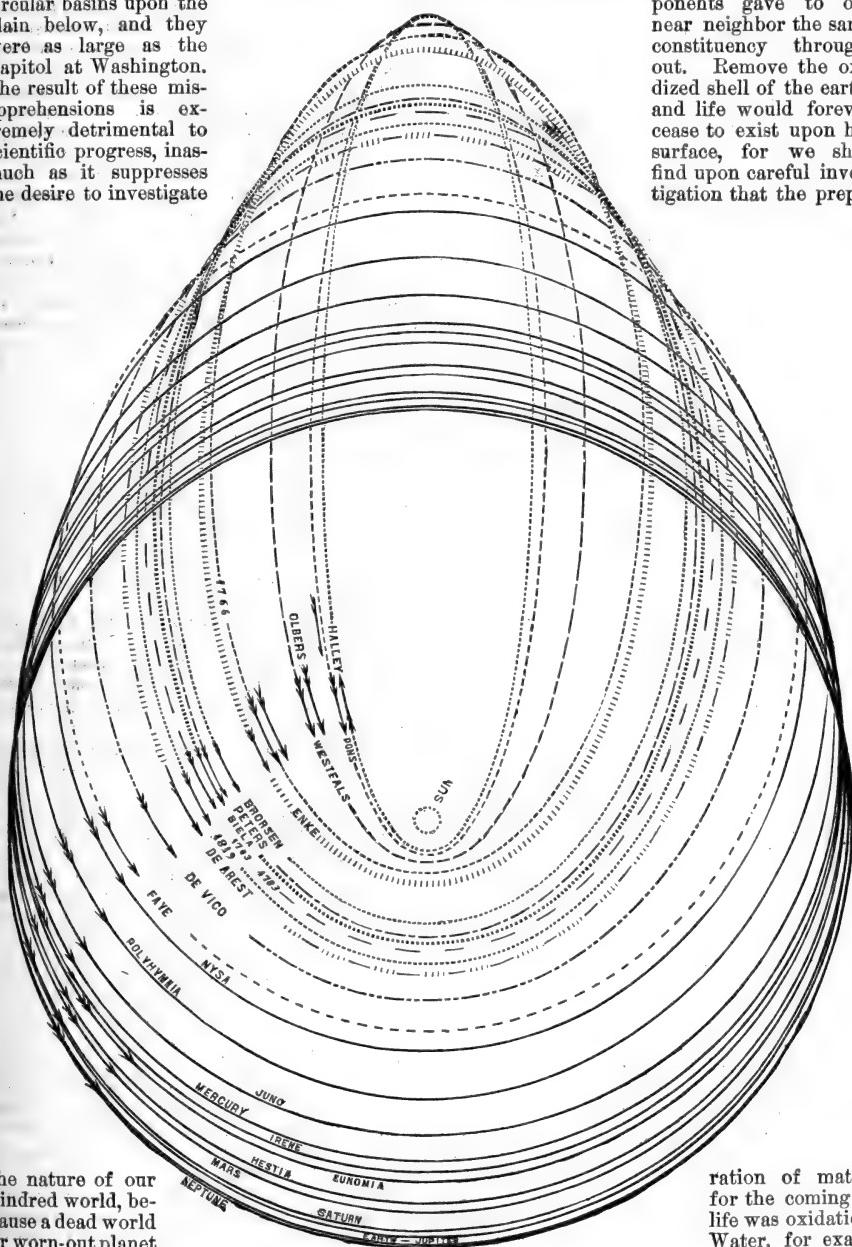
MOON, RECENT OBSERVATIONS AND STUDY OF THE. We here quote a few of the descriptions of lunar desolation that have been brought to the support of the theory that the moon is "a dead world, a worn-out planet." One writer says, "No vegetation clothes its vast plains of stony desolation." Farther on we shall see that all the proofs we can apply in the case point unmistakably to the presence of vegetation and the absence of stones there, except what may have slowly formed by incrustation from the up-flow of its waters about the rims of its fountain-basins, analogous to the examples of the Yellowstone region. "There is no rosy dawn in the morning, no twilight in the evening." Had the author of the foregoing quotation ever examined with sufficient care the surface of an undulating lunar plain, when the sun was low upon it, he would have seen long reaches of shadow so luminous as to be with difficulty distinguishable from the portions in the light, and a careful examination of any good lunar photograph will show the same thing. This is twilight. "The nights are pitch-dark, and the shadows black as ink." It is so common for us to see the entire dark surface of the moon with a crescent on one edge, that children call it "the old moon in the young moon's arms." If this side in shadow did not reflect a very considerable amount of light, we could not see it at all; and, as to the "frightful abysses" often mentioned, there is, on the side visible to us, only one that equals those of the earth, and that is not as abrupt as the Yosemite valley.

The earth being four times greater in diameter than the moon, its apparent disk is sixteen times greater in superficial area; and as it presents to the moon exactly the same phases that the moon does to us, but without being obscured by clouds, and this also being true in relation to starlight, it follows that this "black-as-ink" darkness in the lunar night is absolutely unknown there, but is in reality a quality of the nights of the earth only. By the same writers we are assured that, on account of the absence of an atmosphere, the lunar mountains retain all their original angularity and sharpness of outline. But no person endowed with the ordinary capacity of vision can examine a good photograph of the moon without finding abundant evidence of denudation, from sharp, clear-cut outlines through all degrees of softening down, to depletion so complete that the original forms can only be surmised. There are examples of ancient ring-mountains so depleted by time and atmospheric action that their location can only be detected under the most favorable conditions of illumination even by the best of telescopes.

The declaration that, if life existed upon the moon, we could see it with our telescopes, is directly refuted by the fact that an animal as large as six elephants and most favorably situated for observation would not make a perceptible speck upon the field of the most powerful

telescope. Lord Rosse's telescope was the only one capable of revealing great masses that had fallen from the mountain-rims of some of the circular basins upon the plain below, and they were as large as the Capitol at Washington. The result of these misapprehensions is extremely detrimental to scientific progress, inasmuch as it suppresses the desire to investigate

composed of the oxides of matter; but we shall find that the same causes that gave to our globe its shell-covering of those oxidized components gave to our near neighbor the same constituency throughout. Remove the oxidized shell of the earth, and life would forever cease to exist upon her surface, for we shall find upon careful investigation that the prepa-



the nature of our kindred world, because a dead world or worn-out planet necessarily as-

sumes in our estimation the character and value of a mere cinder.

It is only the thin crust of the earth that is

ration of matter for the coming of life was oxidation. Water, for example, is an oxide of hydrogen, and without it no form of life could exist. Carbonic acid is an oxide of carbon, and without it none of the vegetation of land

or sea could live even with the abundant presence of water. Excepting some of the earliest forms of infusorial life, whose shells are composed of oxide of silicon (silica), all the shells of the mollusks, both of land and water, are carbonate of lime, i. e., oxide of carbon (carbonic acid) and oxide of calcium (quicklime). So we might go on through a volume, but enough has been said to show that all the panorama of life is due solely to the oxidation of the elements of matter. The limitations of an article like this preclude the possibility of marshaling, in their order of succession and strength of numbers, the facts that demonstrate the process through which the elements of matter are oxidized in the progress of creative energy and thereby prepared for the production and succession of life upon celestial globes; but an outline will indicate the nature of the sources whence they have been drawn.

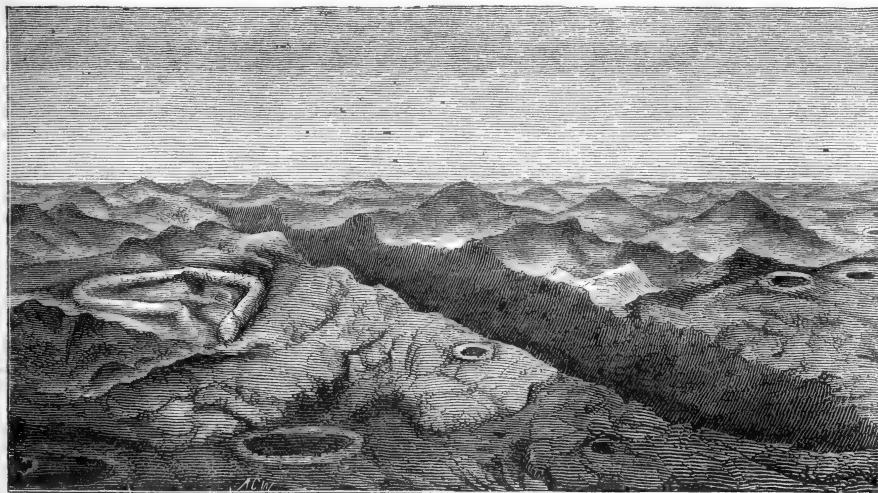
The first illustration represents a few of the planetary orbits, from the least to the most extreme degree of eccentricity, shown in unbroken black lines. The better-known cometary orbits are also exhibited, from their least to their greatest degrees of eccentricity, in dotted or broken lines. The major axes of all the orbits are of the same length for the purpose of conveying more directly to the eye their various degrees of eccentricity, which would be confusing if each orbit were drawn upon its relative scale of magnitude. The most eccentric of the planetary orbits (that of Nysa) has very nearly the same degree of eccentricity as that of Fay's comet, which is the least eccentric of cometic orbits; and from the circular orbit of the planet Neptune throughout the entire group, the element of eccentricity has the character of progressive modification without anything like interruption, distinction, or break where planetary eccentricity merges into that of the comet. The distinction made by astronomers in this respect, therefore, seems arbitrary. The bodies that inhabit the middle ground of orbital eccentricity always present a hazy appearance when in that part of their orbits which is nearest to the sun (perihelion), it matters not whether they have been named planet, planetoid, or comet; and as this is the only portion of these very eccentric orbits in which the bodies inhabiting them are discernible, it is evident that there is no distinguishing physical characteristic or aspect to warrant us in asserting which is a comet and which a planet. From this middle ground, in the direction of decreasing eccentricity, the bodies gradually assume the aspect of planets; and beyond it, in the direction of increasing orbital eccentricity, they as gradually assume the unmistakable characteristics of comets. The physical aspects of the whole group of planets and comets observe a condition of modification corresponding to the degree of eccentricity of the orbits they separately inhabit, and no link in the chain is absent or broken.

The eccentricity of the orbits of both planets and comets is gradually but perpetually decreasing, and the physical aspects of all comets are being steadily modified toward that of planets. For example, when Encke's comet first became known to astronomers, it developed at perihelion a tail 30° in length; now it appears, at perihelion as a hazy globe, while its orbit is as gradually decreasing in eccentricity; if these two processes are continued, at their present rate, it will require but a few thousand years to make it a planet of the solar system. Halley's comet, though having a very eccentric orbit, as may be seen by the illustration, has lost much of its cometic characteristics since first it became known, being also modified toward the planetary condition, both in its physical aspect and in eccentricity of orbit. In truth, comets are but worlds in process of creation, and their establishment as planets of the solar system is but a question of time. Observe in the illustration, for example, that all comets with a less degree of orbital eccentricity than that shown by Halley's, revolve about the sun in the same direction that the planets do, and beyond this degree the orbital characteristic has practically ceased to exist, and assumes that of journeys to and from the sun in all modifications of the more extreme and therefore most eccentric conic sections. These also are the comets that display the most startling cometic phenomena at perihelion, in which portion of their orbits comets are alone discernible—not because many of them would not be telescopically visible in other portions of their orbits, but because the intensity of the solar heat, when they are nearest to that great crucible, expands their matter so enormously as to make them frequently perceptible to the unaided eye. This, probably, is when and where the elements of matter undergo oxidation, simply by being raised to high temperatures and literally burned. The comets whose orbital eccentricity has approximated that of planets no longer display marked cometic characteristics, because their decreased eccentricity of orbit precludes the possibility of their approaching as near the sun at perihelion as formerly; hence they exhibit only a hazy envelope, precisely the same as our own world did at that period of its geological existence, when it is supposed to have been a molten globe enveloped in its own vapors. Comets beyond this degree of orbital eccentricity exhibit at perihelion all modifications of the opposite extremes, not only having their less refractory forms of matter vaporized to invisibility, and thereby exhibiting their solid globes, but those globes themselves are, in many instances, dissipated to invisibility, and the entire comet occasionally remains in that condition for weeks or months. But the matter invariably reassembles when the comet, on its outward journey, after passing perihelion, recedes far enough from the source of heat to permit the now cooling forms of matter to begin to

reassemble at the center of the mass. In the early stages of this reassembling the solid globe becomes distinctly visible, but is soon obscured in the condensing vapors, and the same body, if caught sight of, on its next return to perihelion, before the solar heat has progressed far in evolving vapors from its surface, will be seen as a well-defined globe surrounded by a thin mantle of vapor. That comets are "visible nothingness," "negative shadows," etc., are merely expressions constructed in response to a theory that strangled the science of astronomy in its cradle two centuries ago, and its assumption of authoritative dictation has made men afraid to verify the controverting facts that present themselves in overwhelming

matic telescope, it presented a planetary disk." The planet Venus, when nearest to the earth, does not measure 2' of arc, and when Herschel measured the disk of Halley's comet it was much farther from the earth than Venus, hence its globe must have been considerably larger than either Venus or the earth.

To furnish the illustration we require, we have only to imagine the eccentricity of the earth's orbit to be what it was in a period of the past, not even as far back as its beginning; and through the vicissitudes in which such an orbit would involve it, let us follow its fortunes for a while. When, in its advance from space, it was half-way toward this new perihelion, four times as many sun-rays would fall upon



THE CLEFT OF THE LUNAR ALPS.

abundance. Even Sir John Herschel, while giving expression to views that plainly indicate his suspicions that comets are but younger members of the family of worlds, takes the precaution to hedge, lest he might be looked upon as recreant to the theory. In his "Outlines of Astronomy," writing of Halley's comet at the time of the reassembling of its globe, after perihelion, he says, "It no longer presented any vestige of tail, but appeared to the naked eye as a hazy star of about the fourth or fifth magnitude, and in powerful telescopes as a small, round, well-defined disk, rather more than 2' in diameter." He also says, "Whenever powerful telescopes have been turned on these bodies, they have not failed to dispel the illusion which attributes solidity to that more condensed part of the head which appears to the naked eye as a nucleus." Nevertheless, he tells us upon the preceding page that Cassini describes the comets of 1665 and 1682 as being as round and well defined as Jupiter, and further on he writes of the comet of 1843, "On this day, when viewed through a 46-inch achro-

the square inch as now do; consequently the temperature would be four times as great as it now is, and its waters would exist only as vapor in its atmosphere, enveloping the body and seeking shelter from the source of heat in the shadow of the nucleus. The moon would be in a like condition. Still, the fated worlds went on into the increasing heat, and one by one the forms of less refractory matter would be dissipated into vapor, in the order of their sensitiveness to heat, until finally all of its oxidized matter would be vaporized, because it had formerly yielded at like temperatures to oxidation and therefore to vaporization, and there would be left of the nucleus only those forms of the metals which resisted the process of oxidation with the greatest energy; though some of them, which had not before yielded to oxidation, would do so now, owing to the fact that the elements more ready to combine with oxygen had already done so, and more oxygen would therefore be free to enter into combination with the next form of matter that was the least refractory in that respect. But when this

stage of disintegration had been arrived at, all the matter that had composed the moon would have been vaporized, and would then exist as a part of that composing the tail of the comet, for a comet the world would then be once more. That this would in fact be the state of our world under those circumstances, seems to be demonstrated by the proof that the entire series of rocks that form the geological series are oxides, with the exception of a comparatively insignificant portion, which are combinations with some of the other members of the oxygen sisterhood, such as fluorine, chlorine, sulphur, etc.; but they all alike came down from the vapors that enveloped the primary world. Witness the expression so frequently met with in geological writings: "About this period [the beginning of the deposition or formation of the limestone rocks] the waters of the earth began to give down limestone." But the waters of the earth condensed upon its surface from the vapory condition above it, as soon and as gradually as the cooling of the body permitted their assembling upon it, and before the formation of the earliest limestone they had attained to considerable depth, very nearly to that of the azoic, or lifeless rocks, which overlie the granite. Up to this period of the geological formation, the assembled waters contained no limestone, for there are no traces of its presence in the underlying azoic rocks. This being the case, the oxide of calcium, in the form of quicklime-vapors, must have descended into the waters, and the atmosphere being laden with carbonic-acid gas and the waters permeated by it, the oxide of calcium and this oxide of carbon united in the water, formed an insoluble sediment and sank to the bottom, forming there limestone, chemically known as carbonate of lime. This fact we can demonstrate very simply: Dissolve some quicklime (oxide of calcium) in water, pour off the clear liquid, and breathe into it through a glass tube. The water will immediately become milky with the insoluble carbonate of lime formed by the carbonic acid exhaled from the lungs, uniting with the oxide of calcium and forming limestone, which sinks and forms a layer of carbonate of lime upon the bottom of the vessel, hence "the waters of the earth gave down limestone." All the vast beds of limestone, which are said to cover nearly two thirds of the earth's surface to a depth of sixteen miles, must have been formed in this way and brought down from the vapors enveloping the primary world. Our native globe under such circumstances could not possibly have done otherwise than present splendid cometic phenomena. When this vast envelope of the oxidized forms of matter condensed about the still unoxidized metals of its central mass, they formed the crust that now overlies it and constitutes its geological series of rocks. But there existed in that envelope of vaporized oxides enough beyond what returned to the earth to form also the lunar

globe. Let us consider what the nature of the cooling influences would be, for they may throw some light upon the formation of the moon.

The geological crust of the earth (its sedimentary rocks), formed as fast over the underlying surface as the cooling of the molten globe would permit, and the long ages through which that crust was forming, show how gradual must have been the cooling and how long the globe at the center must have continued to be an internal source of heat. On the other hand, the low temperature from which the cooling resulted, was derived from surrounding space, and therefore was external to the mass and its adhering vapors. The condensation would begin upon and proceed from the outside boundary of the vapory envelope. The vapors condensed then would sink toward the center in response to their increased specific gravity. Before proceeding far in the direction of the nucleus, they would encounter an increase of temperature, and consequent re-expansion, which would repel them part way back, never quite to where they formerly were, because something had been accomplished toward ultimate condensation by the cold absorbed. This vibrating process would gradually produce increasing condensation on the external limits of the pendent vapors. Rain, composed of water and various other oxides, would descend; but the increasing temperature into which it was falling would repel it spaceward by revaporizing it, and long ages must pass before these rains could reach the surface of their native globe. The occurrence of such rains is a well-known geological event; for they descended in large, round drops, falling with such force as to leave their impress in sedimentary clays, so far solidified toward the condition of rock as to retain the impression of the drops, often to half the depth of the drop. These clays subsequently hardened into rock and retained the impressions. Geologists call these "carbon-rains," under the impression that there was nothing in the upper air of those days but watery vapor and carbon, inferring from such formation as asphaltum lakes that the material must have come from the air. But time and careful research will probably prove that all forms of oxidized matter, and some others even in their primal condition, assembled from the vapory envelope subsequent to the period when the molten metallic globe was in complete existence. Even the materials of the granite condensed from the vapory condition,* and the surface it overlaid kept it molten, like glass in a muffle, for its crystallized structure proves it to have slowly cooled from that condition of condensation which we have been considering. But the process would gradually increase the density and contract the limits of the external regions of

* The writer can prove this statement by actual experiment, as there is no form of matter composing the earth that he can not chemically return to the gaseous condition.

the vapory mass, until some solid masses would begin to aggregate there, whose mutual attractions would draw them together; the mass meanwhile assuming the contour of a globe, and becoming a single center of attraction for the still condensing forms of matter about it. And when its primary had assembled upon its surface the rest of the oxidized forms of matter and become a world, it would be found with its own enveloping atmosphere pendent in that of its primary, and in that cometic system two comets would have appeared instead of one, presenting phenomena analogous to that exhibited by Biela's comet.

If this occurred at a certain stage of development of the comet's history, the secondary body would remain permanent; but if, in its next return to perihelion, it was carried so near to the source of heat as to be again vaporized, such a secondary assemblage of matter might not occur again in the same system.

That the moon is a mass of oxidized elements of matter, there can be little doubt when we consider the meteorological phenomena presented by that body. We are called upon to believe, by men assuming to be authorities upon that subject, that our moon has no atmosphere because no clouds appear upon her surface; and yet, when the earth's atmosphere is clear of clouds over large areas, no one would think of asserting that the atmosphere had moved away from these localities. It seems evident that a celestial globe may possess an atmosphere quite as dense as that of our earth, without the necessity of clouds floating in it. The climate of Persia is reputed the most delightful on the earth. For three months of winter it is more or less cloudy, and during the other nine months a cloud seldom appears in its sky; yet it is pre-eminently the land of flowers, and every one knows that localities where clouds and fogs predominate are naturally miasmic and engender diseases of all kinds more than any other climatic conditions. What follows in quotation-marks may be found in Elliot and Storer's "Manual of Inorganic Chemistry," pages 149, 150, and 151: "Antozone is a gas, the odor of which somewhat resembles ozone; there is, however, a decided difference between the two odors, that of antozone being disgusting, while that of ozone is merely pungent and irritating. Antozone changes at once to ordinary oxygen on being heated. A very remarkable characteristic of antozone is its power of forming fogs and clouds with water. It may even be found, after the matter has been more thoroughly studied, that all the fogs and clouds which occur in nature are dependent for their existence upon the presence of antozone. If air charged with antozone be made to bubble through water, it will emerge from the water in the form of a thick, white mist, similar to that formed by the cooling of steam. The same thing occurs when electrified air, or electrified oxygen, issues into a moist atmosphere. The mist produced by

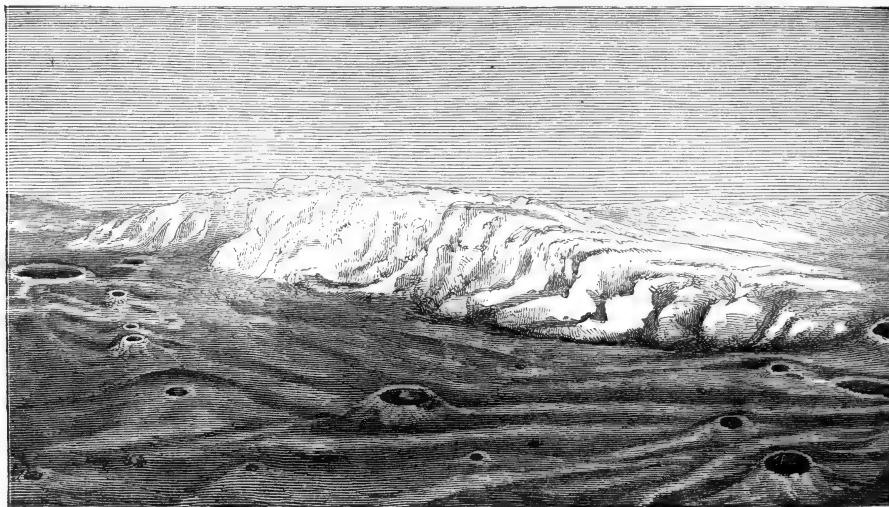
slowly passing antozoneized air through water is heavy; it remains hanging over the surface of the liquid, and may be readily poured from one vessel to another. By conducting it through a tube to the bottom of a tall, dry bottle, it displaces the air, all the while preserving a sharply defined boundary; by gentle agitation it is easily broken up into cloud-like masses. When a large, dry bottle is nearly filled with this antozone-mist, then closed and left to itself, the mist gradually becomes thinner and less opaque, and in the course of half or three quarters of an hour vanishes altogether. As the cloud thus disappears, water is deposited upon the sides of the bottle, at first as a mere dew, but afterward accumulating in drops, which finally flow together to the bottom of the vessel. When the air in the bottle has become clear, no antozone can be detected in it. It thus appears that antozone has the property of taking up water in such a manner that the water assumes the peculiar physical condition of a cloud or mist. While the antozone lasts, the cloud is permanent; but the antozone is soon transformed into ordinary oxygen, and as fast as this change occurs the water of the cloud is deposited in drops. It has been proved by experiment that electrified air can support or carry nearly twice as much moisture as ordinary air or oxygen at the same temperature, and that this air is much more difficult to dry than the gases with which chemists usually have to deal. Tobacco-smoke, the gray smoke of chimneys and of gunpowder, and all such smokes, are antozone clouds—facts which support the idea that all clouds, fogs, and mists are caused by the presence of antozone in the atmosphere."

It is obvious from the above quotations that the presence of clouds and mists in the earth's atmosphere is due to antozone; and where that deleterious gas is absent from the atmosphere of any locality upon the earth's surface, no clouds or fogs can form, and the oxygen of the air is in a state of purity, hence the salutary effects produced upon animal life by a clear atmosphere. Ozone and antozone are produced when oxygen gas is decomposed, although until lately oxygen was supposed to be a simple element. Antozone is an extinguisher of flame, and therefore of life, while ozone is too vigorous a supporter of both, and therefore also injurious to breathe. Oxygen is decomposed by having passed through it a current of electricity; hence, when thunder-storms occur, large quantities of the oxygen of the air are decomposed, and the antozone thus formed produces clouds and mists in quantities corresponding to the energy, extent, and continuation of the electric storm. Who that has watched the progress of some great thunder-storm has not seen the cumulus cloud roll up from the location of the lightning-flashes? Simply because the vigorous electric action had decomposed correspondingly large quantities of oxygen, and the antozone thus liber-

ated took possession of the moisture in the air and made it visible as clouds. Therefore, all that is proved of the meteorological conditions of the lunar atmosphere by the absence of clouds from it, is that there are no thunderstorms there, and that the air of that world is never polluted by the presence of antozone, at least in sufficient quantity to produce a cloud of any considerable magnitude.

The absence of thunder-storms from the lunar world furnishes the proof that it is chiefly composed of oxides; for oxides are both non-conductors and non-producers of electricity. Glass, the oxide of silicon, is used for insulators in telegraphy. The oxidized crust of the earth is from sixteen to twenty miles thick. Interior to this it is entirely composed of matter in its primary forms, as may be inferred from the various metals that make their way to the surface through rifts in the rocks. The whole of the geological series of rocks that

tricity, with one pole of the circuit in the air and one in the earth, meeting with resistance at the surface of the earth by its encounter with non-conductors. The current is on its way from the battery within to the air-current of its own air-circuit without, or *vice versa*—as the case may be—and meeting with resistance from the non-conductors of the earth's surface, its intercepted energy is intensified into a flash or becomes a destructive agent. Had a rod of iron or other conducting metal, sufficient in quantity to conduct the current, interposed between the air and the earth, entering the latter to sufficient depth, no violence would have occurred; or had the entire globe of the earth been composed of oxides, there would have been no electric disturbance. No electrician would think of evolving a current of electricity from glass, porcelain, or clay of any kind; they are oxides, and would not produce a current. It is, therefore, this resistance of



A LUNAR MOUNTAIN RANGE.

overlie this metallic center is not relatively as thick as the shell of an egg, and the metallic center is of necessity a vast galvanic battery. It is, of course, the source of thunder-storms; just as any other galvanic battery is the source of lesser electric currents. That it is a perpetual source of electric currents is demonstrated by the constant influence exerted upon the compass-needle by the positive and negative poles of the earth; while the local disturbances by which the same needle is affected by the near approach to the surface of iron and other metals in their primary forms attest its potency as an active source of electric disturbances. Thunder-storms are merely great local disturbances of these earth-currents; and lightning is not, as formerly supposed, a bolt projected by the flash, but a current of elec-

the oxidized crust of the earth, interposed between the battery inside and the conducting agencies in the air outside, that develops the destructive energy of the current and its accompanying detonations, which we call thunder. Hence it is obvious that if there were no great aggregation of metals, in their primary form, in the earth's interior, there could be no great galvanic battery there, therefore no means of producing powerful currents of electricity, and consequently no thunder-storms. In their absence, no decomposition of the atmospheric oxygen, and therefore no antozone and no clouds, but a perpetually clear atmosphere, though by no means lacking in sufficient watery vapor for all the purposes of vegetation. It is a remarkable fact that in localities upon our own earth where clear skies prevail,

the dew-fall is the heaviest. Even we who are native to the planet are not proof against the fatal effects of our own cloud-system: when by sinking to the surface they envelop us, they are invariably laden with malarial effects, resulting in consumption, rheumatism, colds, and coughs, and communicating to us the germs of diseases of all descriptions. Who has not heard the sick and dying declare that when the air cleared up they would get well? Yet we have been taught to believe that our moon is a dead world, because those agents of death do not float in her atmosphere. That the lunar atmosphere is sufficiently dense to sustain clouds above her surface, has apparently been proved upon more than one occasion; for several trustworthy observers have asserted that they have seen a small basin, called Linné, obscured by vapors that rise above it, and the same phenomena have presented themselves over other small basins. These clouds soon disappeared, however, doubtless for want of sufficient supply of antozone to support them as visible vapor. The same authorities inform us that there is no water upon the moon, and yet again and again its waters have presented themselves in their telescopes, but, for want of knowledge of optical phenomena, they have failed to comprehend or interpret their significance. Thus we have the theories that "there is no water upon the moon"; that "if there were, the attraction of the earth would take it away from her"; that "the waters of that body have all sunk into her interior"; "that owing to her being swung about by the earth, her waters have all been forced to the apex of the side that is turned away from us"; that "the cold to which a body without an atmosphere would be exposed in space would have long since congealed the waters into ice," etc. Every observer that has given much attention to the examination of the lunar surface has seen in his telescope, at times, bright star-like points or curving streaks, so different from the ordinary surface that they glitter in comparison with it. They all alike have the characteristic of remaining visible there for twenty or thirty minutes, and then fading into a dark, steel-gray. The observer that sees these points or streaks glitter upon any occasion may or may not ever see those same locations present this brightness again; but in their steel-gray aspect they are always visible when their location is favorable for examination, though unexpectedly at any moment there may present themselves in the telescope one, two, or a dozen of those seen before, in their glittering aspect; while others, not seen before, may accompany them. They are to be found in many places across the central regions of the globe's surface from east to west, but only in very narrow belts at the same time. Their reappearance in their sparkling phase is so capricious that Beer and Mädler sought, for over thirty years, for one described by Schroter, and, after they had concluded that he had made a mistake, the spot

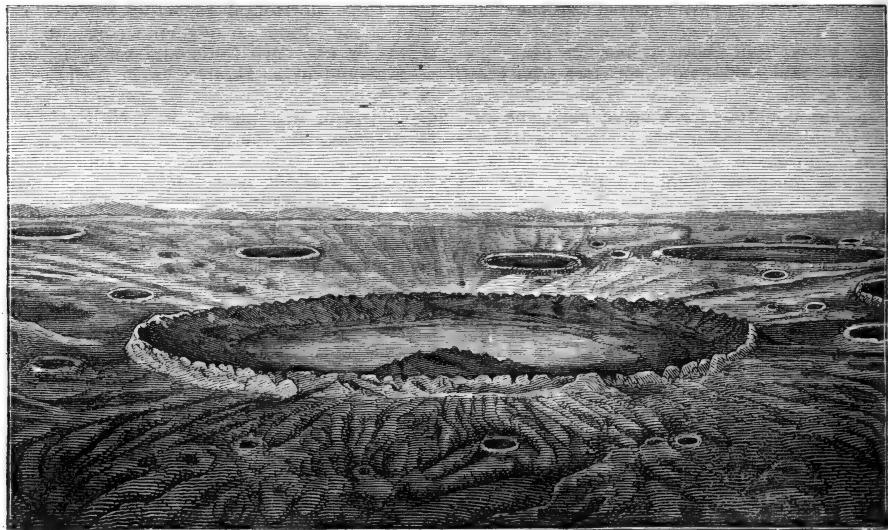
described presented itself to them in its star-like aspect. They could always see it in its steel-gray color, when the light permitted, and found its breadth to be almost two miles; but they never again saw that particular one with its "Sunday clothes on." Some locations of the lunar surface are at times seen to be so thickly studded with minute points of light as to appear nebulous. They are known not to be hillocks or depressions, for they cast no shadows in any angle of sunlight, either inward or outward; they are therefore horizontal surfaces, and their sparkle proves them to have the light-reflecting qualities of a smooth sheet of water. As nothing but fluid would assume a horizontal position on the surface of a globe, it follows that these horizontal reflecting surfaces are fluid of some kind. A moment's consideration will show why such horizontal reflecting surfaces should be so rarely seen in their sparkling aspect, and so constantly seen in the proper phases of illumination, in their steel-gray appearance. As the angle of incidence is always equal to that of reflection, it follows that when the sun, the reflecting surface, and the observer sustain these relations to each other, in a plane that passes through the three points, the observer must always see the sunlight reflected from the intermediate surface; but the least change in the position of any one of the three would cause the reflected beam to pass the position of the observer without entering his telescope. As the moon has a motion of libration, and a motion in its orbit about the earth, while the earth and moon together have a motion about the sun, the relative positions of the sun, moon, and observer can not be sustained longer than twenty or thirty minutes; hence the passing of the sparkling point of light out of the telescope. As the dark field of the sky is in every direction excepting the small portion occupied by the solar disk, some portion of it must always be in position to be reflected into the telescope by those lunar mirrors, hence they can be seen in their dark aspects whenever the region of their location is illuminated. Those points are, for the most part, circular, the largest of them measuring about six miles across, from which they diminish until they become immeasurable; and since their numbers increase as their size diminishes, it is probable that still greater numbers exist, whose dimensions are too small to reflect a beam of light that would be visible at the earth. If water exists upon the moon, then this is the mode of its distribution. But it seems never to have occurred to the philosophers that water could exist upon the surface of a celestial globe in any other form of distribution than that found upon the earth; so they rejected it altogether, forgetting that the superabundance of water and its distribution on the surface of our world implies that it was made more for the use of fishes than for man, while upon our neighboring world it would almost seem that some kindly providence had planned a mode

of distributing water over the surface for the especial convenience of subaërial fauna and flora.

Many other rings or circular basins are distributed over the moon's surface, of sizes varying from those we have just been considering, to diameters of over one hundred and fifty miles; but none of the larger ones present any appearance suggestive of the presence of water. The peculiar markings over the surface about many of them make it unmistakably evident that, in times past, they were the sources of water-flows, some to an extent that makes them the centers of ray-like forms, which proceed from them in every direction. These ray-

islands. That mountain has been chosen because its crater is the widest known, and a glance at both formations will show that the ring-mountains of the moon have no feature in common with terrestrial volcanic craters; one is a depression below the general level, while the other is, by comparison, a slight depression in the top of a mountain elevated far above it. In fact, there is no such thing as a volcano upon the moon.

Some of the radiating ridges from Tycho and other centers are not turned aside by encountering the mountain-rims of other circular basins; but the water entered these and evidently filled them up to the general level of the



TYCHO.

systems decrease from this complete surrounding through all degrees of incompleteness, until many ring-basins are without any appearance of radiates.

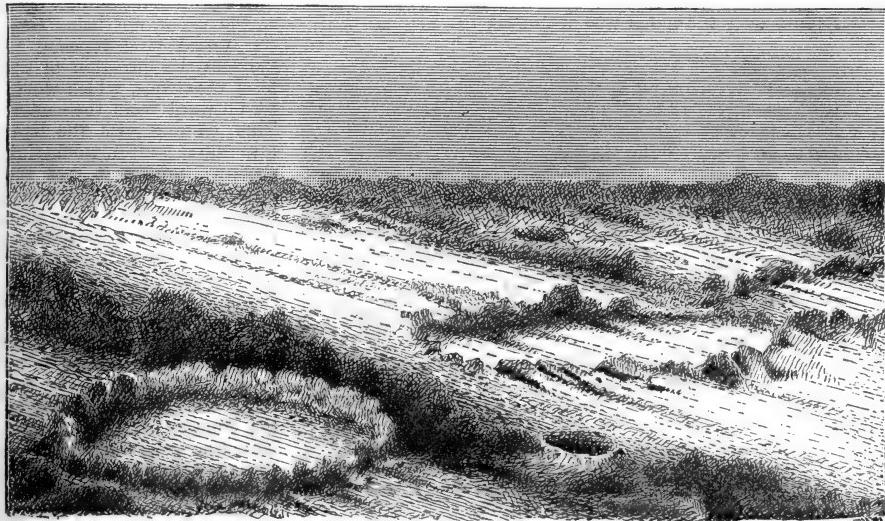
An illustration of the basin named Tycho is here presented, because it is the center of the greatest ray-system on the lunar surface; one of its radiates can be traced to the distance of eighteen hundred miles from it; other "ring-mountains," "basins," or "walled circular plains" without any rays, may be seen in the picture. This basin shows the general construction of the "ring-mountains of the moon." They are, as a rule, quite circular, though there are occasional modifications of this form. The mountain-rim of the larger basins frequently rises five thousand feet above the general level, but the inclosed plain is often depressed below the apex three times more than that altitude; and many of them have mountain elevations at their centers. To the left of the basin has been introduced, upon the same scale, an outline of the volcanic crater Mona Keo of the Sandwich

moon's surface, for the ray continues its original direction across the bottom of the basin entered. Its appearance, however, changes to a smooth ridge across the lake thus formed, depositing, as it went, the sediment it held in suspension, still continuing its course over the surface on the opposite side, and there again assuming its original characteristics of form. These resemble very much those constructed by rivers flowing through their own deltas, which deposited enough sediment to build their own banks above the general level of the delta (like the Nile or the Mississippi), and upon encountering a broader expanse of water deposit a sedimentary drift across its bottom. These water-flows seem to have subsided gradually by slowly decreasing in quantity, filling up their channels with sediment, and most frequently present the appearance of rounded, elevated ridges, hardly high enough to be considered hills. But one of the rays that project from Tycho is a long, deep valley, with banks on either side, which a section of a river flow-

ing through a delta would represent very well. Judging from appearances, upheavals occurred in its course during the earlier period of its flow, which turned aside its waters and left their bed unfilled.

The mountain-rims of those basins do not

tion as their size decreases their numbers increase, so that but a few ring-mountains average over eighty miles in diameter, and they exhibit a decided smoothing down of their mountain-masses, while the smallest, perceptible in the telescope, are very numerous, with



THE RAY ACROSS THE BASIN.

seem to be a continuous, unbroken ridge; for the flow evidently made its entrance and exit through passes that it found in the base of the range, and widened those passes by its attrition, precipitating into the basin from the side first encountered the *débris* it had disintegrated from the bases of the mountain-masses, while upon the side of the outflow long, drift-like formations appear behind separated mountain-masses which have survived complete depletion. There is a great ring-basin known as Stafler, about 70 miles across, and a smaller one by its side named Fernelius, which have had their rims more than half depleted by the flow from Tycho, 300 miles away. These facts prove that these ring-mountains, crossed or depleted by the flow from Tycho, were composed of pliable materials; that their formations antedated that of Tycho; and that flowing water upon the moon produced upon friable matter precisely the same effects that it does upon the earth.

Tycho is one of a few exceptions to the rule that the larger these basins are the more likely they are to bear the impress of age by their mountain-rims giving evidence of denudation; and, though there are examples of all sizes, which give evidence of various degrees of antiquity, yet, as a rule, the smaller they are the more recent appears to have been the period of their formation, judging by the sharpness of their outlines. It is also true that in propor-

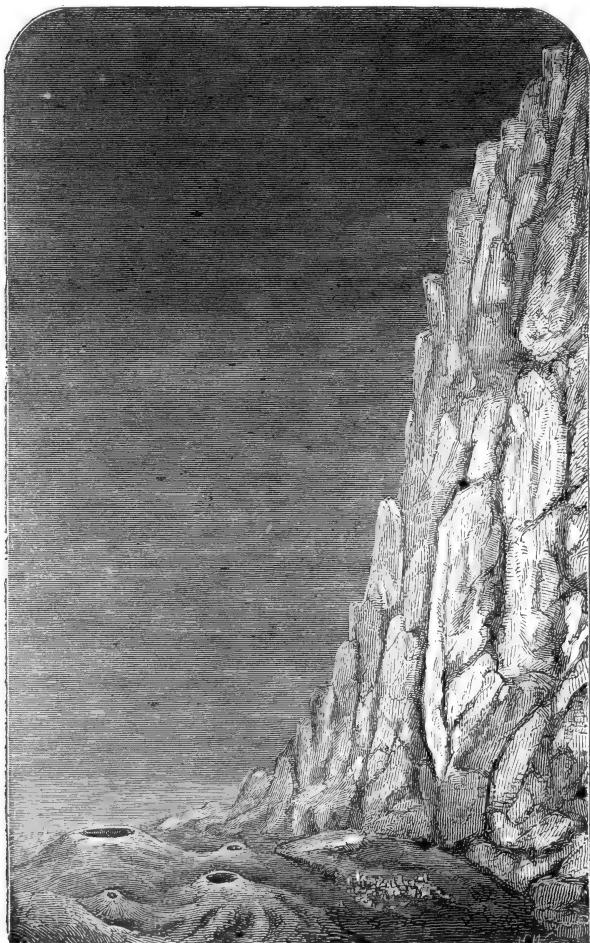
sharply defined rims. They are scattered with about equal profusion over the level of the general surface and of that of the sunken plains, showing that the formation of these plains must antedate that of the small basins. The mountain-rims of the large ones are composed of rugged masses, more or less broken and detached; but this character becomes gradually lost as their diameter decreases, until in the small ones it is entirely obliterated, and they most decidedly assume the appearance of those formed in the Yellowstone valley, which have been constructed by the up-flow of water. It would be difficult to give a better idea of the small lunar basins than that of the spring near Castle Geyser in the Yellowstone country. If seen telescopically from the moon, it would present the same appearance that they do, for the telescope looking into its waters could convey to the observer only the appearance of a round, dark spot. The rim, the contour of the surface about it, and the watermarks radiating from it, are most unmistakable features of lunar scenery; and it will be remembered that those basins in the Yellowstone are not all hot-water springs, for some are described as cold and clear as crystal.

It is obvious, from a consideration of the preceding facts, that the forces that upheaved and constructed the selenographic formations underwent modifications as time went on by which they gradually passed from the vast ag-

gregations of force that upheaved, in comparatively few localities, great circular mountain-ranges a hundred or a hundred and fifty miles in diameter, down through all the intermediate modifications of size to the delicate, spring-like basins to which the fountains of the Yellowstone furnish a peculiar parallel.

Let us now return to that period when the matter composing the moon was beginning to

gether of the friable masses of its mountains implies its presence in their composition. Without it they would crumble to dust, just as the clays of the earth would do under like circumstances, and the surface of the moon would be a plain without form. From first to last, water would come with the assembling oxides, and, as pressure toward the center would increase with bulk, the water, not being elastic, would be compelled to move in the direction of the least resistance, which would be outward from the center. That, coming with the later assembling matter, would sink downward until it met the counter-force that was repelling the interior waters from the center toward the surface, just as water acts upon our own world. Thus each fresh assemblage of water from the external vapors would join that in the interior, increasing its quantity and joining in its progressive return to the surface; and, as the process of the compacting of the mass would be slow, the journey of these waters toward the surface would be correspondingly slow, so that in the closing stages of creative energy, when the last of these pendent vapors that could be drawn toward the moon by its attraction were assembling upon its surface, the crust itself would be hardening, both by its surplus waters sinking downward and their evaporation by the external heat of the sun, and thus organizing resistance to the escape of the waters within. The crust, being sun-baked to quite a depth and cemented with a plastic lining on its under side, would be proof against the escape of the water unless a fracture should occur, but the waters in contact with the under side of the crust would be constantly disintegrating the clays there, by diluting them and thereby causing them to separate from the under side as



THE CLIFFS OF HUYGEN, THE HIGHEST POINT ON THE FACE OF THE LUNAR APENNINES.

assemble from the oxidized elements of matter pendent as vapor in the atmosphere of the primal world. That the vapors of water were everywhere present in this envelope, is a question we need not discuss, since it is a recognized fact in geological research and obvious tracings upon the surface of the moon prove that it assembled there with the primal aggregation of that globe, and the mere holding to-

gether of the friable masses of its mountains implies its presence in their composition. Without it they would crumble to dust, just as the clays of the earth would do under like circumstances, and the surface of the moon would be a plain without form. From first to last, water would come with the assembling oxides, and, as pressure toward the center would increase with bulk, the water, not being elastic, would be compelled to move in the direction of the least resistance, which would be outward from the center. That, coming with the later assembling matter, would sink downward until it met the counter-force that was repelling the interior waters from the center toward the surface, just as water acts upon our own world. Thus each fresh assemblage of water from the external vapors would join that in the interior, increasing its quantity and joining in its progressive return to the surface; and, as the process of the compacting of the mass would be slow, the journey of these waters toward the surface would be correspondingly slow, so that in the closing stages of creative energy, when the last of these pendent vapors that could be drawn toward the moon by its attraction were assembling upon its surface, the crust itself would be hardening, both by its surplus waters sinking downward and their evaporation by the external heat of the sun, and thus organizing resistance to the escape of the waters within. The crust, being sun-baked to quite a depth and cemented with a plastic lining on its under side, would be proof against the escape of the water unless a fracture should occur, but the waters in contact with the under side of the crust would be constantly disintegrating the clays there, by diluting them and thereby causing them to separate from the under side as

derlie the surface equally everywhere, forming a separation of equal thickness at all points between the solidifying globe inside and a shell of equal thickness outside. Hence, when a fracture occurred, the crust would instantly give way to the right and left, and the rush of the imprisoned waters toward the exit would upheave the side that offered the least resistance to its force, and ranges like the lunar Apennines would result, where one face is a long, gradual slope, and the other rises abruptly from a plain. Mountain-chains of this character would form the boundaries of the great plains to a large extent, because the water released in the locality of such an upheaval would permit the crust it had supported to sink to the bottom, so that less of the upheaving action would occur in those locations than elsewhere. Hence it is that such mountain-ranges are found on the borders of the great plains of the moon, which present surfaces so level as to be suggestive of their identity as part of the original surface of the globe in its primal condition of aggregation, preceding the period when the crust was fractured by upheaval. No great ring-mountains are to be found on those plains, though the smaller sizes are not infrequent, showing that the period of the upheaval of the ring-mountains, which next followed, did not extend its forces over those plains.

The forcible exit of the water would be little more than local; because those on the other side of the globe, being 3,000 miles away, would not even be affected by the disturbance before the means of exit would be again closed by the sinking back of the upheaved masses as they were relieved by the release of the water from beneath and the up-rush of the plastic earths into the fractures, thus again sealing the exit of the water still within the globe, and again compelling it to put forth fresh efforts of upheaval to effect still other exits from within. Meantime, the contact of the water with the inside of the crust would be gradually thinning it, while the slow compacting of the body kept steadily increasing the pressure upon the water, and the period of mountain-chain upheavals would merge into a secondary character, more local in its phases, because by this time the under side of the crust, and the upper side of the mass within, would be in contact in many places, and particularly beneath the localities where the upheaval of the mountain-chains had largely released the immediately underlying water, and thereby present a further accumulation of water, and consequently a partial exclusion of the forces of upheaval from these regions. Hence the relatively small numbers of ring-mountains to be found upon the plain. In fact, there were none until after the epoch of the upheaval of the great ring-mountains had passed away and been succeeded by the formations of those of smaller dimensions.

After the crust and the interior mass had

come in contact in different places, the still imprisoned waters would be separated by those local barriers, and could only concentrate their upheaving energies in localities most favorable to their assembling by the increasing pressure of the slowly contracting globe. The stratum of water beneath the incrusted surface, being no longer continuous about the interior globe and inside the external shell, but separated by their junctions at different points, would necessarily be confined to less extended areas of action than formerly. So we have, as the succeeding stage of upheaval, mountain-ranges more or less irregularly oval or circular, but inclosing plains of considerably greater extent than the almost exactly circular ranges that were evidently upheaved at a later date.

The nature of the mechanical action that upheaved the ring-mountains does not seem to be difficult of solution. When the sinking of the external crust and the interior globular mass became more extended, the intermediate assemblages of water would be confined to a more limited extent of action. The force of upheaval would be greatest at the center of the location that was being upheaved, the surface thus becoming convex, and the convexity spreading until the crust would fracture; then the outrush of the water relieving the pressure within would cause the convex upheaved section to fall back into the chasm, and the weight of this dome being thus suddenly thrown upon its circumference, the fracture would chiefly take place there, and the groins of the dome be upheaved—similar to what occurs when the groins of flat arch yield under analogous circumstances. Hence the origin of the ring-mountains. The dome-section would sink to the bottom, retaining more or less of its convexity; and, therefore, many of them form convex plains. The upheaved mountain at the center being due to the yielding, also, at that locality, in all likelihood, after the superincumbent mass began to sink (for the resistance offered by the waters beneath would then be all directed to its center), the duration of the overflow or its volume would depend upon the manner in which it was connected with the water-supply of the interior. The far greater number of the ring-mountains present the appearance of having had little or no water-supply beyond that which upheaved and constructed them, while the few examples like Tycho, judging by their surroundings, must have had a vast supply and a long-continued overflow.

The plains of the moon appear in the telescope very little darker than other portions, though they show very dark in a photograph. If a photograph of our earth were made from the moon, all the portions that were covered with vegetation would be presented in exactly the same manner; but when seen by the telescope they would be very little darker than other parts, because vegetation absorbs the kind of light that produces the photograph,

but not that which makes objects appear luminous to the eye.

The markings of some of the moon's ancient water-flows can be traced to the distance of 1,800 miles over grades that are scarcely distinguishable from the level, which they must have traversed for ages. If the temperature were as high as is claimed by one theory, these waters would have been evaporated long before they could have reached such distances; and if so very cold as is claimed by another, they would have been frozen, and no such tracings would have existed upon the surface. It is always about six weeks after midsummer that we have our hottest days, and the maximum of cold is reached the same length of time after midwinter. If we had thirteen changes of season a year, as the moon has, the heat and cold would be so much more evenly distributed over the surface of the globe, and we should probably seldom experience extremes of either. Indeed, the more we investigate the subject, the more likely we are to arrive at the conclusion that we have not drawn the first prize in the creative event that produced the earth and her moon.

MUSHROOMS AND TOADSTOOLS. These terms are synonyms; the plants belong to the natural order of *fungi*, which includes over 2,000 species that can only be properly studied by the aid of the microscope. There are also to be found about 1,000 cryptogamous or flowerless plants, of sufficient size and substance to be used as food for man. These figures are only approximate—a rigid division of species would increase the number of the latter, and multiply almost infinitely that of the former.



PASTURE-MUSHROOM (*Agaricus campestris*).

The nature, use, and cultivation of mushrooms form the subject-matter of this article. These fungi are classified by the character of the spore-bearing surface, and by the color of the spore. This is the reproductive body. The following are those natural orders of fungi in which are included most mushrooms and toadstools:

Order I.—*Agaricini*, or gill-bearing fungi, in which the spores are lightly adherent to a series of thin plates called gills. These are found under the cap or pileus of the toadstool, and run to a common center at the stem. Example: *Agaricus (Psalliota) campestris*. Pasture-mushroom.

Order II.—*Polyporei*, or tube-bearing fungi, in which a spongy collection of tubes or pores takes the place of the gills noted in the first



EDIBLE BOLETUS (*Boletus edulis*).

order. Otherwise no change is necessarily to be found in the form of the toadstool. Example: *Boletus edulis*. Edible boletus.

Order III.—*Hydnæi*, or spine-bearing fungi, in which short spines or teeth are found instead



EDIBLE TOOTHED-MUSHROOM (*Hydnnum repandum*).

of gills or tubes as noted above; the form or shape not necessarily changing. Example: *Hydnnum repandum*. Edible toothed mushroom.

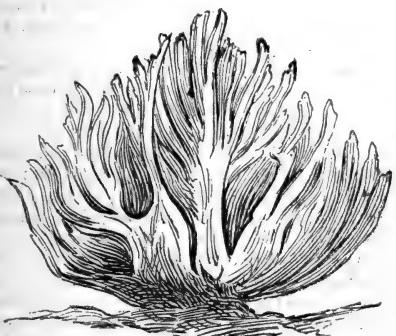
Order IV.—*Auriculani* or ear-shaped, leathery fungi. Here the form is radically changed, and the spore-bearing surface is nearly smooth and even, although sometimes veined and swollen.

Example: *Craterellus cornucopioides*. Horn-like edible craterelle.



EDIBLE CRATERELLE (*Craterellus cornucopioides*).

Order V.—Clavarieci, or club-bearing fungi; the spore-bearing surface not limited to any particular space, and the whole plant resembling a mass of coral. Example: *Clavaria amethystina*. Amethyst clavaria (edible).



EDIBLE CLAVARIA (*Clavaria amethystina*).

Order IX.—Trichogastres, the most important subdivision of the lycoperdace, or puff-ball fungi, the spores being inclosed in the peridium or cuticle of the globular mushroom. At maturity this skin bursts and allows them to escape in fine dust. Example: *Lycoperdon pyriformis*. Small edible puff-ball.

Order XXV.—Elvellacei, or cabbage-like fungi; the fructifying surface is exposed, and the spores themselves are inclosed, generally to the number of eight, in little sacks or cases. Example: *Morchella esculenta*. Edible morel.

Order XXVI.—Tuberacei or subterraneous fungi; bearing in their wrinkled surface the sacks or cases containing the spores, to the num-

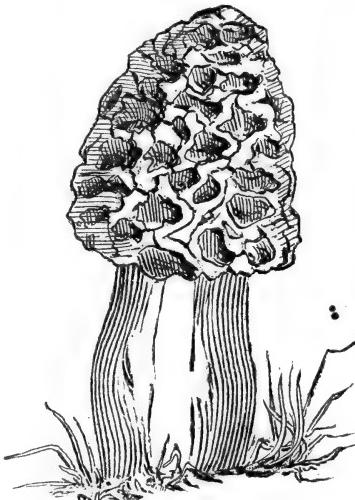
ber of eight, often fewer. Example: *Tuber aestivum*, or black, esculent truffle of France.

Mushrooms may be noxious as food in three ways: 1. They may disagree with the system by their toughness, indigestibility, or use in a state of decay. 2. They may be slimy, acrid, or otherwise nauseous. 3. They may contain a subtle poison without taste, smell, or other indication of its presence.



SMALL EDIBLE PUFF-BALL (*Lycoperdon pyriformis*).

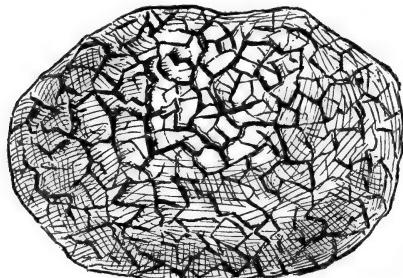
The family of the Agaricini, or those bearing gills, is the largest order here noticed. It contains examples of noxious mushrooms of the three classes above mentioned. But no well-defined cases of fatal poisoning are known except from the use of mushrooms belonging to one of its genera. This is the genus *Amanita*, having pure white gills and spores. The following are its distinguishing marks: *a*. Warts or scales on the skin that covers the cap or



EDIBLE MOREL (*Morchella esculenta*).

pileus. These fall off naturally, or may be easily removed, leaving an unbroken cuticle. *b*. A ring around the stem. *c*. A volva or wrapper inclosing the young plant and remain-

ing at the base of the stem of the mature specimen, as in the figure given below. The last mentioned of these three marks is never found in those edible mushrooms, in search of which the gatherer is liable to be deceived by the *Amanita*. The latter are very common during the autumn harvest of the pasture-mushroom, not generally growing in the open pasture, but on its border, near fences or woods. In the button or half-open state the edible and poisonous plants can not be distinguished from each other by a superficial observer.



ESCUENT TRUFFLE (*Tuber aestivum*).

The symptoms of poisoning by an *Amanita* do not generally appear until after its digestion. They are similar to those of an attack of Asiatic cholera, and until recent years have terminated fatally. The human system absorbs the poisonous element of the fungus, so that the latter may be expelled by the use of pur-



Poisonous AMANITA (*Agaricus Amanita phalloides*).

gatives and emetics, and yet death to the patient be the inevitable result. The antidote is found in subcutaneous injections of atropine, or, if that drug can not be obtained, then in

a like use, by an educated physician, of any available preparation of the *Atropa belladonna* or deadly night-shade. If no preparation of belladonna can be procured, the medical attendant should not neglect to try the other alkaloids from the family of the *Solanaceæ*, or night-shades, such as daturine or nicotine. The patient will die if treated for mineral or vegetable poisons. A case of very slight poisoning will yield to doses of whisky and sweet or olive oil, equal parts, if this can be retained by the stomach. It is possible that other mushrooms and toadstools contain an equally dangerous element; but none such has hitherto been discovered, or defined with any degree of unanimity. Isolated cases of severe sickness occasioned by different mushrooms are, however, reported, but there is no harmony between authors in this respect. Among the genera of the gill-bearing fungi are the two large families of the *Russulae* and *Lactarii*, which contain conspicuous examples of the second division of noxious mushrooms; those that are pleasant to the taste being fit for food, while those not edible are nauseous and acrid.

The whole order of *Polyphorei* or tube-bearing fungi does not probably contain any members dangerous to human life. But there are many that are fibrous and ligneous, and not a few that from their slimy or bitter elements are unfit for food. Those having highly colored or red tubes have been considered poisonous. The mild-colored *Boleti*, having white, yellow, or green tubes, if pleasant to the taste, are safe and delicious food. Many of them turn blue, and some change to red, when cut or bruised. The cause of this is not known; it is certainly no indication whatever of quality, nor does it warn against any poison.

The *Hydnæi*, *Auriculæni*, and *Clavarieæ* may be generally eaten or rejected, from taste; the non-edible members of these orders being either ligneous, as in the case of the two first named, or bitter, as in the case of the *Clavarieæ*.

The *Lycoperdaceæ* or puff-balls are easily identified, and free from dangerous species. Some wart-like fungi growing from wood, and others with a pulp at first nearly white, soon changing to yellow or black, may be mistaken for puff-balls. But all varieties of fungi that appear in the open field after rains in round balls, when hard and white in the center, may be used with perfect safety. If they are soft, yellowish, or black, decay has begun, and they should be rejected.

The *Ervellacei* are not abundant; they are thus named because their surface resembles that of a cabbage. The edible morel is easily identified, and no dangerous fungus is to be found resembling it.

No certainty exists that the *Tuberacei* or truffle family have any representatives in America.

The *Agaricini* are subdivided into five classes or series, from the color of the spores, white, rosy, brown, purple, and black, and then into genera and sub-genera by other nat-

ural characteristics. But no such division is of value in defining the quality of any mushroom. Many of the genus *Amanita* are edible. Of the black-spored mushrooms, the *Coprinini* are generally edible, although they deliquesce into an inky fluid. A mushroom of similar habits and spores, *Agaricus (Panæolus) campanulatus*, not deliquescent, produces toxicological effects little inferior to those of hasheesh or opium. No sign, test, or distinguishing mark to divide the poisonous from the edible fungi is of the least service; one will surely be poisoned if he relies upon any such evidence. A person that once knows any edible mushroom is in little danger of deception.

The fungus-eater must simply learn to identify any species of mushroom as infallibly as

Cultivation of Mushrooms.—Only by indirect methods can mushrooms be propagated. By this is meant that no means of cultivation has yet been discovered analogous to that of sowing seed and awaiting the harvest. By understanding the conditions of growth, and supplying these, mushrooms have been artificially multiplied, and this is all that has been done. For example, the truffle is a most delicious and expensive article of diet. The only way of increasing the supply is by the planting of groves of oaks in the districts to which it is already native; in due time the fungus makes a voluntary appearance in the open spaces between the oak-trees. *Agaricus (pleurotus) ulmarius* might be similarly made to increase by plantations of elm-trees. As these matured, and suf-



MUSHROOM CAVES.

one distinguishes the garden-vegetables from other roots and herbs greatly resembling them. The place, time, and condition of the growth of any mushroom are important elements in its identification. There is no more of the mysterious or of the spontaneous in such growth than in that of any other plant. The various kinds succeed one another through the season with an order and regularity equal to that of flowering plants. Just where a mushroom is found this year, in that very spot, barring accident and drought, will it be found the succeeding year. The vine that produces the fruit is beneath the ground, and for that very reason it is less subject to change than the peach-tree or the rose-bush.

ferred wounds or the loss of limbs, it would be found that a harvest of white edible fungi followed such conditions. *Coprinus comatus* is a delicate, oval, white mushroom, growing normally near cities, and of late occasionally found in the markets. A compost may be made of rich, black earth and the ashes and cinders of anthracite coal mixed in a cellar or other warm and sheltered locality. If this bed is then impregnated by the addition of a few spadefuls of earth from a spot in which the above-named mushroom is growing plentifully, a crop of *Coprinini* will be the result. In like manner, by fertilizing, watering, or sheltering, any place in the open air where mushrooms grow, the harvest may be largely increased.

The mushrooms that are sold in hermetically sealed tin cans are cultivated in immense caves or cellars beneath the soil, in Paris or its vicinity. Space not otherwise valuable is thus utilized, and a uniform degree of moisture and temperature more easily maintained. They are of one variety, the *champignon de couche* (*Agaricus campestris*), of French authorities, gathered in the button, or early stage of growth.

The reason why there is one fungus that is called a mushroom, and that this is universally found in the markets of the world, is simply because its conditions of growth are understood, and, further, that the means of supplying these conditions are within easy reach. In its wild form this mushroom (*Agaricus (psalliotus) campestris*) follows grazing cattle, especially the horse, in whose manure it comes spontaneously, not, however, in the warm or fermented stage. At the base of a manure-heap, where the droppings have combined with farm-yard soil, will be found cakes of compost permeated by a white, mold-like substance, recognized by experts as mushroom-spawn. The formation of this spawn from the spore is a mystery. The only thing that can be said is, that an infinite multiplication of cells, and consequent growth of cellular tissue, seems to begin at the spore and end with the perfected mushroom. There are good reasons for saying that this process is initiated in the union of two spores of opposite sex, by some affinity attracted, and attached at their ends; that copulation and impregnation succeed, after which the cells form and multiply from each parent with incredible rapidity. This is what is meant by the phrase in use among cultivators that "the spawn has begun to run." In order that this may take place, the conditions of fertility must either exist naturally, as in the case of the little mound in the meadow, and the manure-heap, or they must be supplied artificially, as in the case of the mushroom-cave or the greenhouse. The *Agaricus arvensis* is probably but the *Agaricus campestris* in a more cultivated form; as between these two species are found intermediate types quite different from either extreme. But authorities differ widely on this point; some prefer to call these intermediate forms by the latter name, and some by the former. The conditions under which fertility and increase in cellular tissue will take place even to fructification (this latter being the button of the mushroom), are simply those of the manure-heap. For the successful cultivation of the above-named mushroom, then, we must have: 1. Horse-manure from which the excessive heat has departed. 2. Its tone must be reduced by combination with milder elements. 3. A magazine of latent heat must exist radiating toward the matrix or birthplace of the young mushroom. 4. There must also be a warm, moist atmosphere for the respiration of the budding plant. In a natural state, the first condition is furnished by the age of the manure at the base of the heap, the second by the

barn-yard soil there found, the third by the daily additions at the summit, and the fourth by the steam that in rains, dews, or from fermentation is generated in the manure-heap. The failures in mushroom-culture (and they are many) are generally due to the absence of the fourth requirement. This is furnished to the pasture-mushroom by the fogs, mists, and dews of dog-days. It is often unwittingly furnished in the hot-house by the attendant when he lightly waters the plants with his sprinkling-hose. The consequent slow evaporation charges the atmosphere with just the elements necessary to mushroom-life. The third condition can be supplied by making the mushroom-bed against a warm brick wall, or under a greenhouse bench, near steam-heated pipes. For the fulfillment of the first and second conditions, it will be necessary to understand the process of a proper preparation of the materials, and to make a wise selection of the place in which to arrange for the work.

Mushrooms may be raised in hot-houses, cellars, or even in floored apartments. Light is not necessary. Excessive heat is not desirable; 75° Fahr., steadily maintained, should be the temperature. The bed should be begun, if possible, on the earth, with no intervening floor or pavement. A layer of old, coarse manure, with bedding-straw or leaves, to the depth of about three inches, should be the foundation; this may be well watered, and not disturbed in subsequent work on the surface-layer. Segregate one seventh of the space devoted to the entire work, and upon this put the compost, which should be in the proportions of two thirds freshly dropped horse-manure free from straw, and the remaining third in equal proportions of cow-manure (not fresh), and rich, moist, garden loam. The elements must be thoroughly mixed; and, to insure this, they may be all passed through a coarse sieve, such as is used for sand or coal screenings. After mixing, place a plank on the bed, and stamp it down solid; enough material should be used to leave it then about eighteen inches in thickness. Its temperature will rise at once to about 150° Fahr. It must not be permitted to overheat or ferment, but must be turned over every day, at least for the first week, after which, the temperature will decline. To know when it is ready for the spawn, a hole should be forced in the solid mass with a blunt stick; the moment this is withdrawn, thrust a thermometer into the hole; when this experiment shows an even temperature in various places of 85° Fahr., one may proceed to the next stage in mushroom-culture.

Spawn is simply earth or compost where the conditions of spore-fructification have been fulfilled, and the multiplication of cells and cellular tissue has begun. In making the brick-spawn of the seed-stores, the gardener dries such compost, and thus arrests its further development, but preserves its vitality until it is needed. Virgin-spawn, or those portions

of an extinct mushroom-bed that still show a white, thread-like vine closely interlacing through the compost, will give the best results. If this can be procured in abundance, it should be inserted in the mushroom-bed (when the latter stands at a temperature of 90° Fahr.) in large masses, six to twelve inches square, the top nearly at a level with the surface of the bed. There should be a distance of about two feet between these masses of spawn. But if economy is a necessity, or brick-spawn is used, the spawn may be evenly distributed (when the temperature of the compost has fallen to about 78° Fahr.) by inserting it in pieces the size of a large apple, in holes about three inches in depth and eight inches apart. After thus spawning the required space, cover it to the depth of about two inches with lightly laid damp loam; then leave it undisturbed for about six weeks, when the mushrooms ought to appear on the surface. Mushroom-beds do not give a continuous harvest; therefore, if the whole surface is at once utilized, only one crop of any volume will result. To avoid such event, one week after placing material on one seventh the space, another and an equal division should be subjected to the same treatment, and thus the whole bed should be followed to its extreme section. By the time the cultivator begins the preparation of the last seventh, six weeks will have elapsed, and the first division should be in bearing, and this section can be broken up and used for spawn as soon as number two begins to produce. Thus only can consecutive crops of mushrooms be insured. Further, the fact that latent heat and steaming manure are always present at no great distance from the running spawn, will favor fructification.

With all these precautions, the attempt to produce artificial substitutes for morning dew and dog-day atmosphere, results often in naught but failure. Ordinary waterings, congenial to other plants, are worse than useless. A successful result was obtained by making the mushroom-bed on a platform at the apex of a triangularly roofed apartment. Steam was then admitted at intervals into the closed room and allowed to condense at the top; an abundant harvest was the result. With modern facilities for making and conducting steam there should be no difficulty in arranging for its confined condensation over and around the mushroom-bed, and thus overcoming the greatest difficulty in mushroom-culture.

In their wild and normal state, the *Agaricus campestris* (pasture-mushroom), *Agaricus arvensis* (horse-mushroom), *Marasmius oreades* (fairy-ring champignon), *Coprinus comatus* (maned-mushroom), and perhaps some others, produce semi-annually. A spot that has given a liberal harvest in the autumn will produce a lighter and inferior crop in the first warm, moist days of spring. Mushrooms may doubtless be cultivated in the open air, but the contingencies of drought or drenching rain, either of which would ruin the spawn at some stages,

are so probable that no one could afford the experiment. In partially sheltered houses, however, a good crop might be expected if the plan were made so as to mature in the month of August. The reason for this advice is evident: Nature then supplies the conditions of fertility which by man are only imperfectly known. No species of fungus ordinarily appears in opposition to its own condition of growth. This fact explains the absence of hybrids among fungi; even although in a limited square of earth the spawn of many species will be found apparently interlaced, yet each mushroom will there produce after its own kind. This is the ignorant cultivator's safety, for the question might well be asked, if other varieties besides the common mushroom may not appear in the carefully made bed. Certain fragile dung-fungi may occasionally appear; but such could deceive no person that had ever seen an edible mushroom. An apparent hybrid between *Agaricus campestris* and *Cortinarius* has been found in a mushroom-bed. It was thought to be a true *Cortinarius* by some who examined it. Although it might, from its form, be mistaken for a pasture-mushroom, the difference was very evident when it was tasted; and further, its whole family does not contain, in all probability, a single dangerous species. Instances have been known where other species, foreign to the bed, have taken possession of it, but they are very rare. The current traditions regarding these plants are not worthy of notice. No species once safely eaten can ever become poisonous. An amateur may doubtless err by gathering a different mushroom from the one he had formerly recognized. For this reason, it is advised to discard all the recipes given in books for cooking mushrooms with spices, hot herbs, and condiments, and simply to broil, stew, fry, or roast them, adding, as the method chosen requires, only salt, pepper, butter, and milk. It is further advised to proceed diligently to the study of species, as the examination necessary for classification will very soon make a mistake in identity as rare as such an occurrence in the use of other vegetables.

Bibliography.—For popular use the following works are recommended: "Mushrooms and Toadstools," with two colored charts showing the edible and poisonous species, by Worthington G. Smith (London, 1867); "A Plain and Easy Account of the British Fungi," by M. C. Cooke (London, 1871); "Mushrooms of America, Edible and Poisonous," by Julius A. Palmer, Jr. (Boston, 1885); "Les Champignons," par F. S. Cordier, orné de Vignettes et de 60 Chromolithographies (Paris, 1876). The last-mentioned is invaluable to the fungus-eater, provided that he is well acquainted with French. Students acquainted with French are also advised to read the Orfila prize essay, "Des Champignons, par M. Émile Boudier" (Paris, 1866). For a general text-book, or manual for the study and classification of fungi, is recommended "Hand-Book of British Fungi," by M.

C. Cooke (London, 1871); a new and illustrated edition of this work is now (1887) in course of preparation; also, "British Fungi," by Rev. John Stevenson (London, 1886). For a thorough examination of the whole subject of fungi, microscopic and those herein treated, see "The International Scientific Series," XV: "Fungi: their Nature, Influence, and Uses," by M. C. Cooke, M. A., LL. D., edited by Rev. M. J. Berkeley, M. A., F. L. S., with 109 Illustrations (New York, 1875). The orders and nomenclature of Messrs. Cooke and Berkeley are those followed in this article.

The nature of this subject is such that it can not be reduced to the limits of an exact science. The progress achieved has been chiefly made within the past twenty-five years. Even at the present time (1887) those best informed are the most willing to admit that much still remains to be learned.

MUSIC, RECENT PROGRESS OF. The most characteristic feature of the present standard of musical art is the endeavor to express a definite idea, which is steadily growing in favor. This tendency toward the establishment of representative music has for years been opposed by one of the most eminent musical critics of the day, Eduard Hanslick, of Vienna, who holds that it is not the object of music to represent anything in particular; but the increasing number of partisans, defending the contrary view, that all music, without a concrete thought or sentiment for its basis, is a mere play with sounds, would seem to decide the battle in favor of the reformers; and a glance at the musical literature of the day will show that works with titles implying a definite programme, that is, exacting a distinct conception of their contents on the part of the listener, are much more frequent than such as merely indicate the form, be it symphony, overture, or concerto. This feature is most conspicuous in orchestral works and compositions for the piano; but the literature for the latter instrument with the co-operation of others, and the domain of vocal music, have likewise been invaded by the new spirit. The construction of a melody according to purely musical principles, as we observe it in the operas of Mozart and the songs of Schubert, is constantly becoming rarer; the song of the modern school is heightened speech, in which the main stress is laid upon declamation and natural accentuation, rather than beautiful melody, which assumes prominence only by way of exception. Likewise the instrumental accompaniment rarely attains to melodious breadth, but is confined to the treatment of short and pregnant motives, following step by step the verbal sense of the poem, which constantly requires new characteristic forms, thus rendering impossible an integral development of pure melody. This may be seen, not only in Wagner's musical dramas, but in every lyric song of the new school.

As a matter of course, music of that description can not become popular in the ordinary

sense of the word; nevertheless, we can understand that works like the "Nibelungen Cycle" of Wagner will, with the growing appreciation of their intrinsic merit, rise in favor with the public, and become common property, less on account of the music, than in their totality as great works of art, full of sublime poetry.

While cheerfully acknowledging the greatness of Wagner and the high importance of his creations, a serious protest should be made against the pretension that this kind of vocal music is the only true and justified; for, do we not owe to the opposite combination of factors, in which poetry makes concessions to the requirements of musical structure, the entire operatic and song literature of the past?

Stronger than elsewhere the movement in favor of representative music asserts itself in Germany, where it is fostered by the Wagner associations and the German Musical Union. The latter, with a tendency to promote young talent by the performance of new works, especially instrumental, arranges annual music festivals, alternately in a city of North and of South Germany. Besides these, the court-orchestras at Sondershausen and Weimar are well deserving of credit for the promotion of novelties. The former had acquired wide reputation under the able direction of Erdmannsdörfer in 1871-'80; in Weimar, Eduard Lassen, himself a composer of merit, wields the *bâton* in the spirit of the new German tendency. Foremost among the musical institutions of the Fatherland stand the Nether-Rhenish music festivals, which have taken place almost annually since 1818, in regular turn at Cologne, Düsseldorf, and Aix-la-Chapelle (and until 1827 also at Elberfeld), the former three cities combining their choral and orchestral forces. Their object is the performance of acknowledged masterpieces on a large scale, especially symphonies and choral works by the classical composers, though without excluding important novelties by living masters like Brahms and Rubenstein. The stronghold of classical music is the Gewandhaus Concerte at Leipsic, instituted since 1781, at present under the direction of Carl Reinecke. Of late even their programmes have contained new compositions, somewhat out of keeping with their general tendency. Other prominent concert institutions are the court-orchestras in Berlin, Darmstadt, Dresden, Hanover, Mannheim, Munich, and Stuttgart, the Gürzenich concerts in Cologne, the Symphony and Bilse's concerts in Berlin, the Philharmonic and Laube's concerts in Hamburg, Mannfeldt's in Dresden, the Enterpe in Leipsic, and Speidel's popular concerts in Stuttgart. Almost every considerable city has a singing society devoted to the performance of great choral works with soli and orchestra; Stern's Gesangverein and the Singakademie in Berlin, and Riedel's Gesangverein in Leipsic, deserve especial mention. Excellent exponents of church music are the Domehor (cathedral choir) in Berlin, the Hofkapellen (court chapels) in Munich and Vien-

na, and the Thomaner Chor in Leipsic. The opera is cultivated pre-eminently at Berlin, Carlsruhe, Cassel, Cologne, Darmstadt, Dresden, Frankfort, Hamburg, Hanover, Leipsic, Mannheim, Munich, Schwerin, Stuttgart, and Weimar, but can also boast of most creditable representation in other cities, like Breslau, Dantzig, Dessau, Gotha, Königsberg, Magdeburg, and Mentz.

Austria's capital, Vienna, is also its musical center. The most prominent institutions are the Philharmonic concerts, the Gesellschafts Concerte (by the Gesellschaft der Musikfreunde ("Society of Music-Lovers")), the Singakademie, the Chorverein, and the world-renowned Männer Gesangverein. The Vienna Opera ranks among the finest in the world.

Although Paris has, for generations, been a rendezvous of musical talents, and for more than a century upheld a brilliant musical reputation, music has rarely flourished in France as it does to-day, and never boasted of such a galaxy of famous names. Besides Gounod and Ambroise Thomas, whose works supply the repertoires of opera-houses far beyond the confines of their native country, we notice Reber, Lacombe, Membrée, Gouvy, Massé, Reyer, Gastinel, Lalo, Saint-Saëns, Délibes, Dubois, Guiraud, among the older, and Bizet (1838-'75), Joncières, Massenet, Paladilhe, Widor, and Godard, in the younger generation. A current in the modern sense, parallel to that in Germany, is apparent in the increased cultivation of the works of Berlioz as its national representative, in the performance of which the "Concerts du Châtelet" under Colonne vie with the "Concerts du Cirque" under Pasdeloup. Among the composers that follow more or less in Berlioz's footsteps, Saint-Saëns and Godard are the most noteworthy. The Government institutions in France, for the culture of music, and musical talents, and the promotion of musical science, surpass those of any other country.

Passing into Belgium, whose musical institutions are in many respects an imitation of the French, we observe that Brussels has of late been the scene of national concerts, given at short intervals for the exclusive performance of works by Belgian composers. Among these we meet with names little known outside their own country; the most prominent are: Peeter Benoit (born in 1834), since 1867 director of the Conservatory at Antwerp, De Barbure (born in 1812), Buschop (born in 1810), Callaerts, Gevært (born in 1828), since 1871 director of the Conservatory at Brussels, and also a distinguished writer on the history and theory of music, Hanssens, the younger (1802-'71), Hubert (born in 1843), Peter de Mol (born in 1825), and his two nephews, Frans (born in 1844), and Willem (born in 1846), Tinel, Wambach (both born in 1854), Waelput (born in 1845), and Wouters (born in 1841). The music festivals, held more frequently within the past fifteen years (at Brus-

sels in 1869, at Ghent in 1875, at Antwerp in 1876, at Liège in 1878, at Bruges in 1877, and at Mons in 1879), also have in view more especially the performance of national works.

In Holland a similar spirit is astir in promoting music of a national character, making the Flemish language the basis of vocal compositions. The Society of Flemish Musicians, founded in 1875, arranges annually a great music festival. The first, at Amsterdam in 1876, was devoted to the works of native composers exclusively. The foremost among the musical institutions of Holland is the Maatschappij tot bevordering van toonkunst ("Society for the Promotion of Music"), represented in almost every city of importance, notably Amsterdam, Arnhem, Dordrecht, Gröningen, Haarlem, Leyden, Nymwegen, Rotterdam, and Utrecht. The most distinguished among the Dutch composers are: Richard Hol, Bekker, Boers, Brandts-Buys, Coenen, Hagemann, Van der Linden, Meijroos, Nicolai, and Verhulst.

Proceeding toward the north of Europe, we are greeted with the sound of Norse melodies from the Scandinavian Peninsula, where the native composers endeavor to develop a national spirit in music, building upon the tradition of popular songs and dance-melodies still alive among the hardy mountaineers of Norway. Leaving out of the question the Nestor of Danish composers, Gade, who stands high as a musical writer, but has almost ceased to discourse in national dialect, the Norwegians look hopefully toward the younger champions; the best are Grieg, the Norwegian; Svendsen, the representative of Sweden; and Hamerik, the Dane, who in 1872 took up his abode in Baltimore as director of the musical department of the Peabody Institute. Remaining in Denmark are yet to be named Emil Hartmann and G. Bohlmann.

Music is cultivated most zealously in Russia, where the orchestra concerts of the Imperial Music Societies at St. Petersburg and Moscow, established in 1861, are well calculated for the elevation of taste. Until 1867 the St. Petersburg society was conducted by Anton Rubinstein, who, till then, was also at the head of the Conservatory founded by him in 1862. Mily Balakirev directed the concerts in 1867-'72, and was succeeded by Eduard Napravnik, who, although born and bred in Bohemia, is essentially a Russian composer. His successor, since 1876, is Davidov, the famous violoncello virtuoso and director of the Conservatory. The Moscow Society and Conservatory were under the direction of Nikolai Rubinstein, brother of Anton, until his death in Paris, March 23, 1881. In St. Petersburg, as well as in Moscow, a national Russian opera is sustained, besides an excellent Italian opera, by the Imperial Government. Like the whole musical literature of Russia, its opera is comparatively recent, dating from Glinka (1804-'57), whose "Life for the Czar" (first produced in 1836), and "Ruslan and Ludmilla" (1842) still retain

their hold upon popular favor. After him came Dargomiszki (1813-'69), who contributed "Russalka" (1855), and Seroff (1820-'71) with "Judith," "Rogneda" (both in 1863, the latter repeated twenty-three times within three months), and "Wrazyia Sila" (1870). Young Russia is represented by César Cui (born in 1835), with "The Prisoner in the Caucasus," "The Mandarin's Son," "William Ratcliff," and "Angelo"; by Mussorgski (1839-'81), with "Boris Godunow" (1874), and ever since one of the most attractive pieces on the repertory of the Imperial Opera); by Tschaikowski (born in 1840), who, although independent of the young Russian school, ranks unquestionably highest among the Russian composers, and has written the operas "The Vaivode" (1869), "Opritsnik" (1874), "Wakula the Smith" (1876), "Eugen Onegin" (1879), and "The Maid of Orleans" (1880); and by Rimski-Korsakov (born in 1844), Professor of Composition at the Conservatory of St. Petersburg, and the champion of the young Russian school, author of the two operas "Pskovitjanka" (the Maiden of Pskov) and "The May-Night" (1880). Napravnik (born in 1839) contributed "The Inhabitants of Nizhni-Novgorod" (1869); and Rubinstein, who can scarcely be claimed by Russia as a national composer, "The Demon" (1875), and "K拉斯chnikov, the Merchant of Moscow" (1880).

Outside of Russia, Slavonian music is cultivated especially in Bohemia, where the National Theatre at Prague is a sort of Panslavistic institution, producing, besides the operas by Czechish composers, also those of Russian and Polish writers. Among the former the most noteworthy are Smetana (born in 1834), Dvořák (born in 1841), and Mihalovich (born in 1842).

Even into Italy, where the musical life has for generations run in the time-honored channel of national propensity for the purely melodious, the modern spirit is gradually making its way. The German influence upon Verdi is unmistakable in his "Aida" (1871), and the "Requiem" (1874). Next to him, the most celebrated modern Italian opera-composer was Amilcare Ponchielli (born in 1834, died in Milan, Jan. 17, 1886). Lauro Rossi (born in 1812) and Filippo Marchetti (born in 1835) also stand high in the estimation of their countrymen; Antonio Cagnoni (born in 1828) is another favorite; Carlo Gomez, a Brazilian (born 1839), whose opera "Salvator Rosa" had great success at Genoa in 1874, and has since been presented on most of the Italian stages, will be remembered here as the composer of the Centennial Hymn "Il Salute del Brasile," performed at the Exposition in Philadelphia in 1876. But the most talented among the younger generation is Arrigo Boito (born in 1842), whose "Mefistofele," after a complete failure in Milan in 1868, attracted attention, and was reproduced with decided success at Bologna in 1875, at Hamburg in 1880, and

since then in various cities outside of Italy, and in New York in 1881. As a poet and novelist he is appreciated in Italy even more highly than as a composer.

The musical institutions of England are too well known here to require an especial account. The opera is still only represented by the Italian element at Her Majesty's Theatre, and at Covent Garden; while the attempt to create an English opera, by producing the works of John Barnett, Benedict, Balfe, Macfarren, and Wallace, has not been repeated for over twenty years. As a novel departure must be mentioned the starring of two German opera troupes during the season of 1882, for the express purpose of performing the "Nibelungen Trilogy" (by the Leipsic company under Angelo Neumann), and the other works of Wagner (by the Hamburg company under Pollini and Franke). Peculiarly the enterprise was not a success, but Wagner's music has now obtained a firmer foothold in England.

Owing to the great mass of material accumulated in ten years, the mere enumeration of all important works would transgress the limits of space allotted to this article; it will therefore be necessary to confine ourselves this time to the opera, which branch of musical production has always excited the interest of the public more than others.

The general excitement that prevailed in the musical world for a long time before, during, and after the performance of the "Bühnenfestspiel" at Bayreuth in 1876, so completely overshadowed all coeval musical events, that little notice was taken of other creations.

The operatic novelties, not as yet noticed, were the following:

1875.—"The Demon," a fantastic opera in three acts, by Rubinstein (St. Petersburg, January 25); libretto by Viskovatoff, after the poem by Lermontoff, based on a Russian legend. The music throughout is of artistic conception, and characteristic; the orchestration for the most part effective and handled with great routine; the dances in the second act, with their peculiarly Oriental coloring, are especially attractive. "Edda," by Karl Reinthal (Bremen, February 22); libretto by E. Hopffer, treating an episode of the Frisian history during the Thirty Years' War. "The Queen of Sheba," an opera in four acts, by Goldmark (Vienna, March 10), libretto by Mosenthal. A series of gorgeous pageants with Oriental pomp, royal halls, and temple-scenes, Egyptian scenery and costumes, dances and processions, combine with a brilliant and most elaborate orchestration to dazzle the senses, offering scarcely any resting-point, and consequently at times fatiguing. "Die Macabäer," in three acts, by Rubinstein (Berlin, April 17; Prague, October 10), libretto by Mosenthal, after the drama of Otto Ludwig. The composition is of highly dramatic power, does not dwell on details, and depicts the

character of the single situations with admirable truthfulness; suggested by the subject, the chorus in this opera assumes great prominence. "Enzio von Hohenstaufen," by Josef Abert (Stuttgart). "Melusine," by Karl Grammann (Wiesbaden). "Golo," a romantic opera in a prelude and three acts, by Bernhard Scholz (Weimar, May 9; Frankfort, Nuremberg, Cassel, Coburg, October 3; Dresden, December); libretto, after Ludwig Tieck's tragedy of "Genoveva," by the composer, who in this work happily combines the musical forms of the older opera with the best features of Wagner's style. "Die schöne Melusine," a romantic opera in three acts and a prelude, by Theodor Hentschel (Bremen, November 17). "La Perle du Brésil," by Félicien David (Brussels). "La Halte du Roi," by Adrien Boieldieu (Rouen, December 16, on the centennial celebration of his father's birth). "Sardanapalus," by Faminzin (St. Petersburg, December 5); "De Keizer bij de Boeren," by Charles Myry (Brussels, Flemish Theatre, December 27). There was an abundance of new Italian operas (50), but only in rare instances did a work obtain more than local success.

Of comic operas we may notice: "A-Ing-Fo-Hi," by Würst (Berlin and Mannheim); "Das Goldene Kreuz," in two acts, by Ignatz Brüll (Berlin, December 22), libretto from the French of Melville, by Mosenthal; "Angela oder das Traumbild," romantic-comic opera in four acts, by Th. Stauffer (Zürich, December 8); "Carmen," in four acts, by Georges Bizet (Paris, March 3; Vienna, October 23), libretto by Meilhac and Halévy, after Mérimée's novel. The music, frequently aspiring to grand opera, reveals a good deal of melodious freshness and energy of expression; many peculiar turns in harmony and rhythm keep up the interest and lend a charm even to the weaker passages. Especially effective are the choral and dancing numbers and the songs adapted from original Spanish melodies, although a superfluity of this local coloring, with its quaint intervals and transitions, is apt to tire the listener, seeming at the same time forced and far-fetched.

The light-hearted tribe of operettas was scantily represented; the most successful were "Cagliostro," "Indigo," and "Die Fledermaus," by Strauss, which, first produced in Vienna, found their way north, across the Rhine, and over the Alps, to Berlin, Paris, and Naples.

1876.—The representation of the musical drama at Bayreuth made this year one of great significance to all lovers of music. (See "Annual Cyclopædia" for that year.) Other new operas performed were: "Die Hochländer," a historic-romantic opera in four acts, by Franz von Holstein (Mannheim, January), libretto by the composer; the subject of the opera, which was favorably received, is the last attempt of the Stuart faction to raise the pretender Charles Edward in 1745-'46; "Irmin-

gard," by Victor Nessler (Leipsic, April); "Wanda," by Dvorák (Prague, April); "Liederkir," by Jozef Mertens (Amsterdam); "Angelo," by César Cuy (February), libretto after drama by Victor Hugo; "Wakula, the Smith," in three acts and eight tableaux, by Tschaikowski (December 6, both in St. Petersburg). The number of operas produced in Italy was legion; we will mention only: "La Fleur de Harlem," by Flotow (Turin); "Sara," by Gibelli (Milan, with indifferent success, while at Alessandria the composer was called out twenty-two times).

Comic operas: "Piccolino," by Guiraud; "Le Roi d'Yvetot," by Le Vasseur; "Kosiki," by Lecoq (all in Paris); "Maria de Burgondi," by Charles Miry (Brussels); "Princess Toto," by Frederic Clay (London); "Faublas," by Würst (Breslau, Königsberg); "Der Seeadet," by Genée (Vienna).

Operettas: "Fatinitza," by Franz von Suppé (Vienna, Pesth, Trieste, Graz, Cologne, Berlin, Hamburg), was the most successful. As a curiosity, we must mention the performance of a Turkish operetta, "Leblebidji Horhor Agha," by the Impresario of the Tschohadjian troupe at Constantinople. The music, although built, in part, upon Turkish motives, is shaped entirely after Italian models, the scene being laid in the time of the Janizaries; a luxurious display of costumes was calculated to attract a public more fond of pageantry than fastidious in its musical taste.

1877.—Operas: "Le Timbre d'Argent," by Saint-Saëns (Paris, Théâtre-Lyrique, February 23), libretto by Barbier and Carré; the work was composed ten years ago, and has no decided style, still it was performed with all the signs of success; "Cinq-Mars," in four acts, by Gounod (Paris, Opéra-Comique, April 5), libretto by Poirson and Gallet, after the novel of Alfred de Vigny; favorably received and several times repeated; "Le Roi de Lahore," in five acts, by Massenet (Paris, Grand Opéra, April 27), libretto by Gallet; the opera, with a *mise en scène* in Oriental splendor surpassing anything ever before witnessed in Paris, met with a decided success; "Der Trompeter von Säckingen," by Bernhard Scholz (Wiesbaden); "Francesca da Rimini," in three acts, by Hermann Götz (Mannheim, September 10), libretto by the composer; the music is full of dramatic effect, and was warmly applauded; "Der Landfriese," in three acts, by Brüll (Vienna, October 4, Berlin and Munich, October 18 and 19), libretto by Mosenthal, after Bauernfeld's comedy; "Armin," heroic opera in five acts, by Heinrich Hofmann (Dresden, October 14, and Hamburg), very effective, and was warmly received; "Simson et Dalila," in three acts, by Saint-Saëns (Weimar, December 2), libretto by Ferdinand Lemaire; "Heinrich der Löwe," in four acts, by Edmund Kretschmer (Leipsic, December 8), libretto by the composer; met with an enthusiastic reception.

Comic operas: "Nanon," by Richard Genée (Vienna); "La Surprise de l'Amour," by Fer-

dinand Poise (Paris); "The Sorcerer," by Arthur Sullivan (London); "Les trois Margots," by Grisar (Brussels).

Operettas: "Leichtes Blut," by Catenhusen (Hamburg); "Le Docteur Ox," by Offenbach; "L'Étoile," by Chabrier; "Les Cloches de Corneville," by Planquette; "La Marjolaine," by Lecocq (all in Paris, the latter also in Madrid under the title "Amapola").

1878.—Of Wagner's "Nibelungen Cycle," produced in its entirety at Bayreuth in 1876, we have to enumerate as novelties the performances of the single parts as follows: "Rheingold" (Leipsic, Vienna, January 24, Hamburg, Brunswick, November); "Die Walküre" (Schwerin, Leipsic, Hamburg, Rotterdam); "Siegfried" (Munich, Schwerin, October 6, Vienna, November 9, Leipsic); "Die Göttterdammerung" (Leipsic); and finally the whole Cycle (Munich, November 17-21); "Die Offiziere der Kaiserin," by Würst (Berlin); "Gustav Wasa," by Karl Götz (Chemnitz); "Die Albigenser," by Jules de Swert (Wiesbaden, October 1); "Ekkehard," by J. J. Abert (Berlin); "Lancelot," by Hentschel (Bremen), libretto by Franz Bitting; "Aenechen von Tharau," by Hofmann (Hamburg); "The Sly Peasant" (Bohemian opera), by Dvořák (Prague); "Polyeucte," by Gounod (Paris, October); "La Reine Berthe," by Victorin Joncières (Paris, December 23); "The Mandarin's Son," by César Cuy (St. Petersburg, December).

Among the host of Italian operas the following were fairly successful: "Cleopatra," by Lauro Rossi (Naples); "Francesca da Rimini," by Cagnoni (Turin); "Il Falconiere," by Tommaso Benvenuti.

Of operettas the following deserve mention: "Le petit Due," by Lecocq (Paris, London, Pesth, Vienna, Turin, Berlin); "Camargo," by Lecocq (Paris); "Babiale," by Laurent de Rillé (Paris); "Les deux Mandarins," by Martin Lazare (Schaerbeck, Brussels); "Die letzten Mohikaner," by Genée (Munich, Leipsic); "Das verwunsene Schloss," by Millöcker (Vienna); "Die Königstambours," by Wohaslo (Breslau); "Der Teufel auf Erden," by Suppé; "König Jerome," by Ziehrer; "Cesarine," by Max Wolf (all in Vienna).

1879.—Operas: "Konradin von Hohenstaufen," by Gottfried Linder (Stuttgart, January 19), libretto by the Grand-duchess Vera, revised by E. Pasqué; "Étienne Marcel," in four acts, by Saint-Saëns (Lyons, February 8), libretto by Louis Gallet; "Der Rattenfänger von Hameln," in five acts, by Nessler (Leipsic, March 19, Hamburg); "Iwein," by August Klughardt (Neustrelitz, March 28); "Robin Hood," in three acts, by Albert Dietrich (Frankfort, April 6), libretto by Reinhard Mosen; "Meister Martin und seine Gesellen," by Wendelin Weissheimer (Carlsruhe, April 14), libretto after Hoffmann's tale by Dr. Schröder; "Ekkehard," by Moritz Jaffé (Bremen); "Nero," in four acts, by Rubinstein (Hamburg, Novem-

ber 1, and nine times more in the course of the month), libretto after the French of Jules Barbier. Full of dramatic life and a wealth of melody and rhythm, which produces a pre-eminently brilliant impression, this work at the same time did not fail to move the audience deeply by many beautiful details, and was received with a storm of applause; the composer, who conducted the opera himself, was called before the foot-lights fourteen times; "Eugen Onegin," by Tschaikowsky (St. Petersburg), after the novel of the same name by Pushkin; "Verful cu dor," by Liubicez (Bucharest, February 6), first national opera, libretto by the Princess Elizabeth of Roumania, under the pseudonym of F. de Laroc.

Comic operas: "Gräfin Dubarry," by Millöcker (Vienna); "Bianca," by Brüll (Dresden, November 25); "La Marquise des rues," by Hervé; "La courte Escelle," by Membrée; "La petite Mademoiselle," by Lecocq; "Pâques Fleuries," by Lacome (all in Paris).

Operettas: "Le grand Casimir" and "La jolie Persane," by Lecocq (Paris); "Boccaccio," by Suppé (Vienna, Frankfort, Prague, Leipsic, Brünn, Berlin, Pesth); "El lucero de l'Alba" and "Amor che empieza y amor che acaba," by Don Manuel Fernandez Caballero; "Un Tigre de Mer," by Llanos (all in Madrid); "Le Billet de Logement," by Léon Vasseur; "La Fille du Tambour-major," by Offenbach (both in Paris).

1880.—Operas: The harvest in this field was very scanty. France produced only "La Nuit de Saint-Germain," by Serpette (Bordeaux); and "La Princesse jaune," by Saint-Saëns (Stuttgart). Germany gave us "Jean Cavalier," by A. Langert (Coburg, January 1); "Wieland der Schmied," romantic opera in four acts, by Max Zenger (Munich, January 18), libretto by Th. Allfeld after Simrock's poem; "Agnes Bernauer," in three acts, by Felix Mottl (Weimar, March 28), the text a free adaptation after Hebbel and Böttger; "Adam de la Halle," in two acts, by Ernst Frank (Carlsruhe, April 10), libretto by Mosenthal after a novel by Heyse; and "Das Nordlicht von Kasan," an historical opera in four acts, by Carl Pfeffer (Leipsic, August 29), libretto by Carl Kroene. From other countries we gather: "Don Giovanni d'Austria," by Marchetti (Turin); "Tancrède," by Theodor Döhler (Florence); "Maria di Gand," by Tito Mattei (London, Her Majesty's Theatre); "La Czarine," by Gasparo Villate (The Hague), libretto by Armand Silvestre; "The May Night," by Rimsky-Korsakoff (St. Petersburg, January 20); "Kalaschnikoff, the Merchant of Moscow," by Rubinstein (St. Petersburg, March 5); "Attala," by Meneses, a Mexican (Guadalajara).

Comic Operas: "Jean de Nivelle," in three acts, by Délibes, libretto by Gille and Gondinet (Paris, Opéra-Comique); "La Girouette," in three acts, by A. Coëdes (Paris, Fantaisies Parisiennes); "Le Beau Nicolas," in three acts, by Paul Lacome (Paris, Folies-Drama-

tiques); "Der Ritterschlag," in two acts, by Hermann Riedel (Vienna), libretto by Mosenthal; "Don Pablo," in three acts, by Theobald Rehbaum (Dresden, September 16); "Bianca," by Ignaz Brüll, new arrangement of former edition (Dresden, October 9).

Operettas: "Das Spitzentuch der Königin," by Johann Strauss; "Donna Juanita," by Suppé; "Capitán Ahlström" and "Graf von Gleichen," by Josef Hellmesberger, Jr.; "Nissida," by Genée (all in Vienna); "Les Voltigeurs du 22. régiment," by Planquette; "Belle Lurette," by Offenbach (both in Paris, Renaissance Theatre); "The King's Dragoons," by Rogel (Lisbon); "Il Sogno d'amore," by Bernardo Bellini (Naples, Cirecolo dell' Unione).

1881.—Operas: "Le Tribut de Zamora," in four acts, by Gounod (Paris, April 1), libretto by d'Ennery and Brésil, with moderate success; "Les Contes d'Hoffmann," in four acts, by Offenbach, libretto by Barbier (Paris, Opéra-Comique, February 10), said to be unquestionably the composer's best effort, and met with enthusiastic reception; "La Bague magique," in four acts, by Armand Castegnier (Mons, Belgium); "Der Wärwolf," a romantic opera in three acts, by J. H. Franz (Count Bolko von Hochberg) at Dresden, February 6; libretto by Paul Frohberg, after the old fairy-tale; "Der verschleierte Prophet," by C. Villiers Stanford (Hanover, February 6), libretto after Moore's "Lalla Rookh"; the opera, dramatically effective, met with decided success; "Thusnelda und der Triumphzug des Germanicus," in three acts, by Karl Grammann (Dresden, March 11), libretto by H. Dickmann; the prevailing character of the music is declamatory, though it takes at times a bolder flight, and is melodiously effective; the climax of the opera is the final triumphal procession, arranged after Piloty's picture; "Der Flüchtling," by Edmund Kretschmer (Ulm, April 1); "Eberstein," by Felix Mottl (Carlsruhe, September 18), libretto by Putlitz, after Uhland's ballad to the celebration of the grand duke's silver wedding. "Das Käthechen von Heilbronn," a romantic opera in four acts, by Reinthaler (Frankfort, December 8, Brunswick, December 25, conducted by the composer), libretto by Heinrich Bulthaupt, freely after Kleist's drama; the opera had won the competition prize, and was received with great applause; "Der wilde Jäger," romantic opera in four acts, by Victor Nessler (Leipsic, December 11), libretto by Friedrich Hofmann, after Julius Wolff's epic poem; the reception was favorable. From other parts we gather: "The Maid of Orleans," in three acts, by Tschaikowsky (St. Petersburg, February 25), received with a storm of applause, although critics charge the work with poverty of invention; "The Rose of the Carpathian Mountains," by Siegfried Saloman (Stockholm); "The Box of Pandora," by Collins (Boston), libretto by Longfellow.

Comic operas: "Herodiade," by Massenet (Brussels); "Les Pantins," by Hue (Paris);

"Two Widows," by Smetana (Hamburg); "L'amico di casa," by Cortesi (Florence); "Inognito," by Henry Longé (London); "The Twelve Jolly Bachelors," by Darling (Boston). Operettas: "Die Jungfrau von Belleville," by Millöcker; "Der lustige Krieg," by Strauss; "Wiener Kinder," by Ziehrer; "Der Gascongner," by Suppé, (all in Vienna).

1882.—The great event of this year was the performance of Wagner's latest creation, "Parsifal," at Bayreuth, on July 26, and during the month of August, on every Sunday, Tuesday, and Friday. The work created a deep impression, and, though applauded sparingly during its progress, met with enthusiastic approbation at the end, and earned much greater applause on the second evening than on the first. On the whole, Wagner, in this work, has remained true to his principle of the "Leitmotive." A welcome exception is the return to choruses, and in the artistic structure, the beautiful proportions, and the masterly elaboration of the motives, the master has really surpassed himself. This applies especially to the transformation scene in the first act, the Good-Friday idyl and the flower-girl scene, an episode of irresistible charm. Among the prominent motives, that of the "Heilandsklage" is the most impressive. The performance was most creditably conducted by the court-kapellmeister Levi, of Munich, and among the soloists Frau Materna, as Kundry, and Herr Reichmann, as Amfortas, carried off the palm.

On the second evening Fräulein Brandt undertook the part of Kundry, with marked success.

Other novelties in this year were: "Hagbarth und Signe," a romantic opera in three acts, by Edmund von Mihalovich (Dresden, March 12), libretto by Adolf Stern, after Oehlerschläger's drama based on the old Norse saga—the music is severely Wagnerian; "Francesca da Rimini," by Ambroise Thomas (Paris, April 14), libretto by Barbier and Carré—this work had only a succès d'estime; "Alfonso und Estrella," by Franz Schubert (Vienna, April 15), libretto by Franz von Schober—although the opera was brought out by Liszt in Weimar about 1855, it is a very remarkable fact that it had never been given in Vienna, the composer's native city, it is full of inventive power and contains a sufficient number of dramatic details to make it effective; "Das Andreasfest," a romantic opera in three acts, by Karl Grammann (Dresden, November 30), libretto by Roderich Fels, contains many attractive details, and was warmly received.

Comic operas: "Galante Aventure," by Guiraud (Paris, March); "Der Bauer ein Schelm," by Dvořák (Dresden, October 24).

1883.—Owing to the abundance of novelties, the review of the remaining past seasons must be confined to the works by authors of established reputation, or those among the younger composers, whose former creations have been successful. Beginning with France, we have to register only: "Henry VIII," in four acts,

by Saint-Saëns (Paris, March 5), *succès d'estime*. In Germany: "Gudrun," by Klughardt (Dessau and Berlin); "Sulamith," a Biblical drama in five tableaux, by Rubinstein, text by Julius Rodenberg, after the Song of Solomon; "Unter Räubern," comic opera, by the same composer, text by Ernst Wichert (both in Hamburg, November 8, conducted by the composer); "Antonius und Cleopatra," by Wittgenstein (Gratz).

Comic operas: "Lakmé," by Délibes (Paris and Frankfort); "La Princesse des Canaries," by Lecocq (Folies-Dramatiques); "Königin Mariette," by Brüll (Munich, Leipsic, and Nuremberg); "Die vornehmen Wirthe," by Scholz (Leipsic, March 10). In England: "Colomba," by Mackenzie (London, Drury Lane Theatre, Liverpool, and Edinburgh).

Operettas: "Mam'zelle Nitouche" and "Le Vertigo," by Hervé (Paris, Théâtre Renaissance); "Madame Boniface," by Lacome (ib., Bouffes Parisiennes); "Die Afrikareise," by Suppé (Vienna, Hanover, and Gratz); "Eine Nacht in Venedig," by Strauss (Vienna and Pesth).

1884.—Operas: "Sigurd," in five acts, by Ernest Reyer (Brussels, January 7); "Manon," in three acts and six tableaux, by Massenet (Paris, Opéra-Comique, January 19); "Pedro de Zalamea," in four acts and a prelude, by Godard (Antwerp, January 31); "Sappho," in two acts, by Gounod (Paris, April 2), first produced in 1851, in three acts, now rewritten; "Der Graf St. Mégrin," by Flotow (Cologne, January 10); "Hammerstein," by Jules de Swert (Mentz and Magdeburg); "Sakuntala," in three acts, by Weingartner (Weimar, March 3); "Der Trompeter von Säkkingen," in three acts and a prelude, by Nessler (Leipsic, May 4, then in Hamburg, Darmstadt, Bremen, Dresden, and Strasburg).

Comic operas: "Die Studenten von Salamanca," in three acts, by Bungert (Leipsic, January 28); "La Nuit aux Soufflets," in three acts, by Hervé (Paris, Théâtre Nouveautés,

September); "Princess Ida," by Sullivan (London, Savoy Theatre, and Boston).

Operettas: "Gasparone" and "Der Feldprediger," both by Millöcker (Vienna, January 26 and October 31); "Rafaella," by Max Wolf (Munich); "Pfingsten in Florenz," by Czileulka (Vienna, December 20); "L'Oiseau bleu," by Lecocq; "La Cosaque," by Hervé; "Le Château de Tire-Larigot," by Serpette (all in Paris at the Théâtre Nouveautés).

1885.—Operas: "Die Kaiserstochter," in three acts, by Willem de Haan (Darmstadt, February 1); "Das steinerne Herz," by Rehbaum (Magdeburg, February 13); "Fritjhof," by Hopffer (Schwerin); "Wittwe Grapin," posthumous opera by Flotow (Pesth, June 7); "Tabarin," by Émile Pessard (Paris); "Le Chevalier Jean," lyric drama, in four acts, by Joncières (Paris, March 11; Cologne, November 26); "Le Cid," by Massenet (Paris, November 30), obtained a brilliant success, and is considered the composer's best effort in the field of opera; "Nadeshda," romantic opera, by A. Goring Thomas (London, Drury Lane, April 16), libretto by Julian Sturgis; "Nyaga," by Ivan Hallström (Stockholm), libretto by the Queen of Roumania; "King Stephen," by Erkel (Pesth, March 15); "Uriel Acosta," by Madame Szzerov (Moscow), libretto after the drama by Gutzkow.

Comic operas: "Myrtille," in four acts, by Lacome (Paris, Théâtre-Gaité, March); "Une Nuit de Cléopâtre," by Massé (Opéra-Comique, April 25); "Marion Delorme," by Ponchielli (Milan, March 18), libretto after Victor Hugo; "The Mikado," by Sullivan (London, Savoy Theatre).

Operettas: "Die Zwillinge," by Genée and Roth (Vienna, February 14); "Des Matrosen Heimkehr," by Suppé (Hamburg, May 4); "Don Cesar," by Rudolf Dellinger (Hamburg, Pesth, Berlin, Leipsic, Vienna, Gratz, and Munich); "Der Zigeunerbaron," by Strauss (Vienna, October 24, and Pesth); "Le Chaperon rouge," by Serpette (Paris, Théâtre Nouveautés).

N

NEBRASKA. State Government.—The following were the State officers during the year: Governor, James W. Dawes, Republican; Lieutenant-Governor, H. H. Shedd; Secretary of State, E. P. Roggen; Treasurer, Charles H. Willard; Auditor, H. A. Babcock; Commissioner of Public Lands and Buildings, Joseph Scott; Attorney-General, William Leese; Superintendent of Public Instruction, W. W. W. Jones. Supreme Court: Chief-Justice, Samuel Maxwell; Associate Justices, Amasa Cobb and M. B. Reese.

Finances.—The financial condition is highly satisfactory, as is shown by the following official statement:

Balance on hand Nov. 30, 1884.....	\$442,816 99
Amount received in the following two years... .	3,523,544 10

Total amount received	\$3,766,661 09
Total amount disbursed.....	2,822,308 88

Balance in treasury, Nov. 30, 1886 \$944,352 76

The amount of State indebtedness as reported Jan. 6, 1885, was \$499,267.35. This has been reduced by payment of the \$50,000 State relief bonds that matured March 1, 1885, which were, as provided by law, paid from the sinking fund, leaving a present total State indebtedness of \$449,267.35, consisting of twenty-year bonds, maturing April 1, 1897, and drawing interest at the rate of 8 per cent. per annum, payable semi-annually, representing a

debt incurred before the adoption of the present Constitution, which provided that the Legislature should at its first session provide by law for the funding of all outstanding warrants and other indebtedness of the State.

The original issue of bonds was for the amount of \$549,267.35, which was reduced, June 28, 1879, by the redemption of bonds to the amount of \$100,000, leaving the balance stated above, \$326,267.35 of which is held as an investment by the permanent school fund, the remainder, \$123,000, being held by private parties.

The assessed valuation of the taxable property of the State in 1885 was \$133,418,699.83, an increase of \$9,802,812.98 as compared with the assessment of 1884. The assessment of 1886 gave the value of the property of the State for the purposes of taxation as \$143,932,570.51, giving a total increase for two years of \$20,316,683.56.

The rate of taxation for State purposes for 1885 was $7 \frac{2}{3}$ mills, and for 1886, $7 \frac{1}{2}$ mills on each dollar of valuation, and there was collected during that time the sum of \$1,904,158.06.

The appropriations asked for the operating expenses of the State government to March 31, 1889, amounted to \$2,043,568.73.

This, as compared with the estimates for operating expenses of the State government for the two years ending March 31, 1887, is an increase of \$927,165.13.

The amount due the State from counties for the care of patients in the Hospital for the Insane, to Jan. 1, 1887, is \$179,138.67.

The cash in the permanent school fund amounts to \$1,524,356.36.

In addition to the above, all principals on sales of school lands are to be included, which can not be estimated with accuracy, but will be about \$200,000 per annum.

Public Institutions.—The Institute for the Blind is now entering upon its twelfth year. There have been received seventy-three blind children, nine of whom have completed the prescribed course of study. The enrollment and attendance for the past two years was thirty-nine pupils, which taxed present accommodations to the utmost.

The number in attendance at the Deaf and Dumb Institute during the last two years has been 144; of this number 83 are males and 61 females. The total number in attendance since the organization of the school is 242.

The number applying for admission to the Home for the Friendless has greatly increased during the past two years. Number of inmates in the home in December, 1884, was 42; admitted since that time, 345; making the total number aided through this agency, 387.

The building provided for in the act of the last Legislature, establishing an institution to be known as the Nebraska Institution for Feeble-minded Youth, and locating it at Beatrice, subject to certain conditions, which were fully met, has been erected and will be ready for occu-

pancy as soon as provision is made for that purpose. The cost of this building was \$45,-444.

The total number received at the Insane Hospital during the past two years was 747, with a daily average of 365, and at the date of report for two years ending Nov. 30, 1886, there were remaining in the institution 374 patients. Of the number treated during the past two years, 56 per cent. have been restored to mental health, and 20 per cent. have been returned to their friends. Old and incurable patients have been returned to their homes to make room for more recent cases. The death-rate has been 5 per cent of the whole number treated each year. The whole number of patients treated since the opening of the hospital is 1,740; the total number of insane people in the State at the present time is about 1,000.

The new insane asylum at Norfolk, provided for by the act of the last Legislature, has been completed at a cost of \$65,772.

The number of commitments to the State Reform School has increased from 15, at the opening of the school, Nov. 30, 1881, to 208, Nov. 30, 1886. The number under instruction at date last given was 136; out upon leave of absence, 24; making the total number of commitments in force at this time, 160.

As shown by report of the Warden of the State Penitentiary the total number of prisoners received at the prison since its opening in 1869 is 1,146; total number discharged during that time, 818; leaving in prison at date of report, 328.

The contract leasing the convict-labor was extended at the last session, and will expire Oct. 1, 1889.

Organization of Counties.—Since the last session of the Legislature the necessary papers have been filed in the Executive office asking for the organization of the counties of Logan, Dawes, Sheridan, Chase, Blaine, and Sioux. Proclamations, as required by law, have been issued, and the organization of the above-named counties has been perfected. During the past four years eleven counties have been organized, making the total number seventy-seven.

Capitol Building.—The work upon the central portion of the Capitol has gone steadily forward during the past two years, and the building is nearing completion. The cost to the State thus far is as follows: West wing, \$74,988.75; east wing, \$100,000. The amount appropriated and expended under the levy of 1883 and 1884 upon the main building was \$116,964.45, and the amount expended for the same purpose under the appropriation and levy of 1885 and 1886 was \$138,613.75, making the total amount expended, in connection with the central building during the past four years, \$255,578.20, and the total expenditure upon the Capitol to Nov. 30, 1886, including amount paid for plans and specifications and pay of superintendent, \$430,567.15. To com-

plete the building under the term of the contract will require an appropriation of \$188,659.74. The Commissioner of Public Lands and Buildings calls attention to needed changes in the original plans of the building, and the necessity of providing for them, as well as for the finishing of the interior, and the laying out and general improvement of the Capitol-grounds. The amount asked for to carry this into effect is \$93,000.

Railroads.—Below is given an approximate statement of the number of miles of railway in operation in the State, Jan. 1, 1887:

Union Pacific Railway.....	470.8
Omaha, Niobrara, and Black Hills.....	387.8
Burlington and Missouri River.....	1,622.7
Missouri Pacific Railway.....	134.6
Fremont, Elkhorn, and Missouri Valley.....	540.0
St. Joseph and Grand Island.....	120.0
Sioux City and Pacific Railway.....	26.9
Chicago, St. Paul, Minnesota, and Omaha.....	243.5

Total mileage..... 3,543.3

The number of miles assessed in 1885 was 2,765; valuation, \$18,534,789; in 1886, 2,984 miles; value, \$19,458,144.

Political.—The Prohibition State Convention met on August 24, and made the following nominations: For Governor, H. W. Hardy; Lieutenant-Governor, E. B. Graham; Secretary of State, E. J. O'Neil; Treasurer, A. J. Leach; Auditor, J. A. Hooper; Attorney-General, Martin I. Brower; Commissioner of Public Lands and Buildings, L. B. Palmer; Superintendent of Public Instruction, J. A. Smith. The following are the important features of the platform:

We recognize the absolute necessity for enforcement of the Sabbath-laws upon our statute-books, and we pledge ourselves to such enforcement.

We believe that the liquor-traffic is the greatest promoter of ignorance, lawlessness, and vice which now confronts our State and nation—a foe waxing in strength, cruelty, and defiance—a foe which finds shelter and support in both the Republican and Democratic parties.

The constitutional and statutory prohibition, in the State and nation, of the manufacture, importation, and sale of alcoholic liquors is the most vital issue before the American people.

License of the traffic, high or low, is public bribery and a political crime of unequalled enormity, and all political parties who favor licensing this appalling evil, and all individuals who vote in support of such parties, become accomplices to all the murders and myriad crimes growing out of the traffic.

We are in favor of the repeal of our statute which permits foreigners to vote at our State and municipal elections who are not full and complete citizens of the United States in accordance with the naturalization laws thereof.

We are opposed to the present contract system of convict-labor, which brings the products of the penitentiary in direct competition with the honest labor of the State, and we demand that all convicted felons be confined within the prison-walls. We favor branding all articles manufactured in penal institutions as prison-made goods.

We are in favor of the abolition of the appointment system and the restoration of the elective power to the people, thus removing a most corruptive element of patronage from the executive and legislative departments of our Government.

We favor abolishing the fee-system of compensating public officers, and demand the enforcement of the law

which makes it a felony to loan public moneys for private gain.

We condemn the Republican and Democratic parties for foisting upon the people of Nebraska a worthless and expensive railroad commission, in utter disregard and brazen contempt for the wishes of the people, as expressed by their ballots at the general election of 1884.

That while we condemn rioting and the wanton destruction of property, we sympathize with every proper effort of the wage-workers to improve their moral and financial condition, recognizing the fact that labor is the source of all wealth; we therefore demand such legislation as will provide for the settlement of all differences between capital and labor, by a board of arbitration elected by a direct vote of the people.

We demand that the rates for the transportation of freights upon the various railroads in this State be so adjusted that remuneration for the services performed by them shall be just and equitable, but that they shall not be permitted to establish rates to raise a revenue for the purpose of paying dividends on illegal and excessive issues of stock or interest on fictitious indebtedness, and we pledge ourselves to support such legislation as may be necessary to prohibit such practices; and we are further opposed to monopolies of every form and character, managed by the few to the detriment of the many.

We favor thorough, liberal, and complete public education; a more careful and just imposition of taxes; constant watchfulness against the increasing power and exactions of individuals; a vigilant supervision of the uses to which the franchises intrusted to corporations are put; and a careful maintenance on the part of the Government of a complete control of economic conditions, in currency, in the ownership of land, and in all other particulars on which the general diffusion of prosperity may directly or indirectly depend. In all public measures we insist on the common welfare as the only criterion of sound legislation and wise social policy.

Inasmuch as the women of our country are of equal intelligence and superior morals: Therefore, be it

Resolved, As the sense of this convention, that the ballot should be extended to them, and that their rights, privileges, and immunities under the law should be coextensive with those of men. We are in favor of our State Legislature extending immediate municipal suffrage to the women of Nebraska.

The Republican State Convention was held at Lincoln, on September 29. The following were nominated: For Governor, John M. Thayer; Lieutenant-Governor, H. H. Shedd; Secretary of State, Gilbert L. Laws; Treasurer, C. H. Willard; Auditor, H. A. Babcock; Attorney-General, William Leese; Commissioner of Public Lands and Buildings, Joseph Scott; Superintendent of Public Instruction, George B. Lane. The platform denounces the National Administration, and resolves as follows:

The Republican party, having enfranchised the workingman, and protected him from injurious competition with pauper labor abroad, favors all further practicable measures for the enhancement of his well-being, the vindication of his manhood, and the security of his rights.

It favors intelligent organization of wage-workers for all lawful purposes, and especially for mutual protection from the encroachments of organized capital. It demands stringent laws for the prevention of injurious competition of contracted convict-labor with free labor. It will not permit anarchism, or sanction the settlement, by mob violence, of differences between employers and employed, but pronounces for a fair system of peaceful arbitration in all cases where the par-

ties can not by themselves agree, to the end that justice may be guaranteed between labor and capital.

The sympathies of the Republicans of Nebraska are tendered to the people of Ireland and other portions of Great Britain in their struggle for home-rule, and they recognize in the contest for loyal freedom, waged by Parnell and Gladstone, a manly battle for human rights, against the assumptions of hereditary rulers and monopolists of land.

The regulation of interstate commerce by Congress is necessary to prevent extortion and unjust discrimination by railroad and other transportation companies, as supplementary to State regulation, and we declare it to be the duty of the national Legislature to promptly pass measures to remedy the evils of oppressive combinations and corporate irresponsibility to State authority.

The ownership of large bodies of land obtained by aliens from the public domain, through evasions and perversions of the homestead and pre-emption laws, enacted for the benefit of industrious citizens of limited means, is a cause for apprehension, and legislation is demanded that will prevent the monopoly of the public domain by foreign or resident capitalists for purposes of speculation.

That the Republican party of Nebraska is in favor of submitting the question of an amendment to the State Constitution, prohibiting manufacture, sale, or importation of spirituous, malt, or vinous liquors.

The Democrats nominated the following persons: For Governor, James E. North; Lieutenant-Governor, C. J. Bowley; Secretary of State, Richard Thompson; Auditor, Thomas Ebinger; Treasurer, T. J. Hale; Superintendent of Public Instruction, L. E. Cooley; Attorney-General, W. L. Green; Commissioner of Public Lands and Buildings, T. W. Smith. There was also a National ticket in the field. On November 2 the Republican ticket was elected. The vote for Governor was as follows: Republican, 75,956; Democratic, 52,656; Prohibition, 8,175; National, 1,422; scattering, 30. Of the voters, 50,448 expressed a preference for United States Senator, of whom 46,110 voted for Senator Charles H. Van Wyck. Republicans were elected to Congress from the Second and Third Districts and a Democrat from the First. The Legislature of 1887 consists of 25 Republicans and 8 Democrats in the Senate, and 70 Republicans and 30 Democrats in the House. An amendment to the Constitution was adopted by a vote of 65,712 for, to 22,236 against. The amendment is to section 4 of Article III of the Constitution, and the section as amended reads as follows, to wit:

Section 4. The term of office of members of the Legislature shall be two years, and they shall each receive pay at the rate of five dollars per day during their sitting, and ten cents for every mile they shall travel in going to and returning from the place of meeting of the Legislature, on the most usual route: Provided, however, That they shall not receive pay for more than sixty days at any one sitting, nor more than one hundred days during their term; that neither members of the Legislature nor employés shall receive any pay or perquisites other than their salary and mileage. Each session, except special sessions, shall be not less than sixty days; after the expiration of forty days of the session no bills nor joint resolutions of the nature of bills shall be introduced, unless the Governor shall by special message call the attention of the Legislature to the necessity of passing a law on the subject-matter embraced in the message, and the introduction of bills shall be restricted thereto.

NETHERLANDS, a kingdom in Western Europe. The Parliament, called the States-General, consists of an upper house, elected by the provinces, and a second chamber, elected by ballot in the proportion of one representative to 45,000 of the population. The King has the power of veto, but it is never exercised.

The reigning sovereign is William III. The ministry is composed of the following members: Minister of Foreign Affairs, A. P. van Karnebeek; Minister of the Interior, J. Heemskerk Az; Minister of Justice, Baron M. W. du Tour van Bellinchave; Minister of Finance, J. C. Bloem; Minister of the Colonies, J. P. Sprenger van Eyk; Minister of the Waterstaat, Commerce, and Industry, J. G. van den Bergh; Minister of War, Maj.-Gen. A. W. P. Weitzel; Minister of Marine, Capt. W. L. A. Gericke.

Area and Population.—The area of the kingdom is 12,648 square miles. The population on Dec. 31, 1885, was officially computed at 4,336,012, comprising 2,147,133 males and 2,188,879 females. The number of marriages in 1885 was 29,894; of births, 155,820; of deaths, 98,096; excess of births, 57,724. The number of still-born was 7,792. The following cities contained above 100,000 inhabitants on Dec. 31, 1885: Amsterdam, 372,325; Rotterdam, 173,884; the Hague, 138,696.

The Army.—The regular army stationed in the Netherlands in 1885 consisted of 2,339 officers and 63,229 men. The infantry numbered 1,036 officers and 42,843 men; the cavalry, 143 officers and 3,987 men; the artillery, 500 officers and 13,832 men; the engineers, 95 officers and 1,432 men. The active militia numbered 38,188 men, and the sedentary militia 77,103 men.

The military forces in the East Indies consisted on Jan. 1, 1885, of 39,236 regular troops, not including the officers, 1,391 in number, and 9,348 militia and volunteers. The number of Europeans in the regular army was 13,492.

The Navy.—The naval forces of the Netherlands consisted in July, 1886, of 23 armored vessels, 98 steamers, and 25 school-ships and other non-effective vessels. There are 6 turret-ships with rams, 7 monitor-rams, 5 other monitors, 5 armor-clads for river-defense, 31 unarmored corvettes, 31 gunboats, and 25 torpedo-boats.

Finances.—The budget for 1886 places the total revenue at 115,149,065 guilders, and the expenditure at 130,943,648 guilders. The receipts from the land, personal, and license taxes are 26,930,350 guilders; from excise duties, 41,875,000 guilders; from stamps, registration, and succession duties, 21,397,000 guilders; from customs, 4,962,000 guilders; from posts, 5,450,000 guilders; from domains, 2,440,000 guilders; from railroads, 1,950,000 guilders; from other sources, 10,144,715 guilders. The principal expenditures are the public debt, which requires 34,989,299 guilders; the army, for which 20,424,956 guilders are set down; the navy, 12,652,156 guilders; the

Waterstaat, 20,894,817 guilders; and the department of finance, for which 23,435,236 guilders are appropriated, of which sum 8,600,000 guilders are the indemnity due to communes for the suppression of the *octroi*, and 5,000,000 guilders are the estimated loss on silver money demonetized under the law of April 27, 1884.

The public debt in 1866 consisted of 611,805,300 guilders at 2½ per cent., 90,299,150 guilders at 3 per cent., 9,186,000 guilders of amortization bonds, 218,863,000 guilders of national debt at 4 per cent., 18,303,700 guilders of 4 per cent. bonds authorized in 1878, 59,088,100 guilders authorized in 1883, 38,342,200 authorized in 1884, and 5,435,000 guilders issued for the construction of the Amsterdam Canal. The Chamber in 1886 authorized the conversion of the 4-per-cent. bonds into 3½ per cents., issued at 97, securing an annual saving in the interest charge of 1,300,000 guilders.

The provincial expenditures in 1884 amounted to 5,421,000, and the communal budgets make a sum of about 66,000,000 guilders per annum.

Commerce.—The value of the special imports in 1884, including precious metals, was 1,128,471,000 guilders; of the special exports, 841,232,000 guilders. The values of the leading articles of import and export were as follow, in guilders:

ARTICLES.	Imports.	Exports.
	Guilders.	Guilders.
Iron and steel.....	141,207,000	93,468,000
Textiles and textile materials.....	123,995,000	100,745,000
Cereals and flour.....	138,402,000	81,040,000
Coal.....	34,036,000	14,155,000
Rice.....	37,275,000	11,082,000
Petroleum.....	18,696,000	615,000
Coffee.....	45,378,000	29,170,000
Butter.....	12,450,000	45,941,000
Cheese.....	69,000	10,288,000

Great Britain furnished 317,232,000 guilders of imports, and received 186,506,000 guilders of exports; Germany furnished imports of the value of 284,653,000 guilders, and took 390,502,000 guilders of the exports. The imports from Belgium were 146,326,000 guilders, and the exports to Belgium, 129,779,000 guilders. The total imports of European origin were 921,582,000 guilders, and the exports to all European countries, 768,379,000 guilders. The imports from the United States were 65,696,000 guilders, and the exports to the United States 22,435,000 guilders. The imports from Java were 75,463,000 guilders, from the Dutch West Indies 2,256,000 guilders, the exports to Java 43,341,000 guilders, and to the Dutch West Indies 2,122,000 guilders.

The Legislature in 1886 increased the duty on foreign brown sugar, and fixed the rebate on colonial sugar at 2½ per cent. instead of 1½ per cent. An act was passed in April, lowering the export duties of Netherlandish India, and increasing the import duties from 6 to 10 per cent.

Navigation.—There were 2,326 sailing-vessels, and 5,695 steamers entered at Dutch ports during 1885. The largest share of the tonnage was British. The number of Dutch sailing-vessels was 968; of Dutch steamers entered, 1,488. The merchant navy on Jan. 1, 1885, comprised 634 sailing-vessels, of 550,003 cubic metres displacement, and 106 steamers, of 306,833 cubic metres.

Railroads.—The railroads on Dec. 31, 1885, had a total length of 2,372 kilometres.

The Post-Office.—The number of letters forwarded in 1885, inclusive of post-cards, was 87,582,607; the number of journals, 50,443,163. The receipts of the administration in 1885 were 5,311,118 guilders; the expenses, 4,034,516 guilders.

Telegraphs.—The length of the state telegraph lines on Jan. 1, 1886, was 4,700 kilometres; the length of wires, 16,780 kilometres. The number of messages transmitted during 1885 was 3,476,050, of which 2,001,743 were internal, 1,442,955 international, and 31,352 official. The receipts were 1,057,928; the ordinary expenditure, 1,655,214; extraordinary expenditure, 84,329 guilders.

Legislation.—A revised criminal code was adopted by the Legislature, and went into effect Sept. 1, 1886. Flogging of convicts is allowed, but not pinioning in constrained postures.

A treaty concluded with Germany throws open the German North Sea ports to Dutch coasting-vessels.

Dissolution of the Chamber.—In April the ministry, in consequence of an adverse vote, resigned in a body, but the King refused to intrust the direction of the Government to the Right, who in the lower chamber counted 43 members against 43 who ordinarily voted with the ministry, and in the upper Chamber were decidedly in the minority. The chamber was adjourned *sine die* on account of the ministerial crisis. After some weeks Heemskerk and his colleagues withdrew their resignations, and on May 20 the second chamber was dissolved. The provincial elections, on which the elections to the first chamber depend, had gone in favor of the Liberals, and in the popular elections in June the Government candidates were victorious in 46 districts, while the Orthodox Calvinists elected 16 deputies, the Catholics 17, and the Conservatives only one.

The New States-General.—A second session of the States-General was opened on July 14. On September 19 the old Chambers were closed, and on the following day the newly elected States-General was opened by the Prime Minister. He announced legislation dealing with the sugar crisis in Java and a change in the laws relating to the rights of association and assembly. A revision of the Constitution extending the electoral franchise was expounded in October. Heemskerk had before declared that the present Government would never support universal suffrage. The proposed reform imposes limitations based on intelligence and certain

social conditions. The number of senators is to be increased to 50, and that of deputies to 100. The Minister of Marine, Gericke, resigned in December because the second chamber refused grants for a new armor-clad and three torpedo-boats. The Colonial Minister asked for an advance from the treasury to cover the deficit in the Indian accounts for 1887, amounting to 15,000,000 guilders. A parliamentary investigation of the conditions of labor in factories was authorized.

Riots in Amsterdam.—Domela Nieuwenhuis, the leader of the Dutch Socialists, was tried in June on the charge of insulting the King in his newspaper, and condemned to a year's imprisonment. His conviction and sentence provoked the censure of a considerable portion of the Liberal party as well as that of his numerous followers. In September, in the appellate court, another man came forward and confessed to having written the article. On July 4 he went to Amsterdam to deliver a speech on the subject of treason. A great crowd that assembled at the railroad-station to meet him was dispersed by the police, who used their weapons against the men and women that thronged the streets. In the hall there was a collision between the people and the police, who again made use of their sabers. In the Hague and other places Nieuwenhuis received similar ovations.

Suspicion and anger rankled in the minds of the working-classes, on account of the supposed persecution of their popular leader and the unwonted violence of the authorities in suppressing a street demonstration. Shortly afterward a favorite sport of the people of Amsterdam was forbidden on account of its cruelty. The game consists in standing in a boat that is rowed rapidly, and trying to tear a large eel from a cord on which it is suspended overhead. Many of the competitors fall into the water, while the successful one receives a prize. The annual Kirmiss was also interdicted, and a new law was made against drunkenness, which was considered an act of class legislation. The people refused to submit to interference in their amusements, and continued the practice of eel-baiting. On the evening of July 25, in the thickly peopled quarter called the Jordaan, policemen ordered the young men and boys engaged in this pastime to desist, and, when they refused, one of them cut the cord. He was seized and severely maltreated. The others attacked the crowd with their swords, but were overpowered, disarmed, and put to flight. Reinforcements came up until there were 200 policemen on the ground. They charged several times into the crowd, but were driven back with stones thrown by the mob in the street and the people in the houses. Many persons were wounded on both sides. The rioters had constructed barricades, and, after the paving-stones had been replaced, during the night they were torn up again in preparation for the renewal

of the conflict, while children broke stones with hammers and carried off the fragments in baskets, in order to have a supply of missiles for the rioters. The following evening, at five o'clock, they built new barricades. Infantry and cavalry advanced against them, instead of the police. When they refused to disperse, the troops marched on the barricades, but were received with a shower of stones. They killed a man that planted a red flag on the barricade, and others, who were seen to throw stones, and when, after being thrice warned, the people remained, they poured a volley into the crowd, killing and wounding several persons. The rioters still held their ground, and did not disperse until several volleys had been fired. After nine o'clock barricades were thrown up in another part of the disturbed quarter. The fighting was continued until one o'clock in the morning. Of the police, 40 were severely wounded. The soldiers killed 25 citizens and inflicted severe wounds on about 50. Some persons were struck by bullets entering their houses. Isolated attacks on the military and the police were continued for several days. Many of the police force resigned their offices. The jails were filled with arrested rioters. The sale of newspapers on the streets was forbidden. The Socialist Fortuyns was arrested as the suspected author of a newspaper article praising the people for the lesson they had given to the police. Vanderstart, another leader of the Social-Democratic party, was also placed under arrest. They were tried in October, and both sentenced to imprisonment for publishing articles inciting to resistance of the law. In October the ministry brought in a bill restricting the rights of association and assembly. All demonstrations or assemblages out-of-doors must have the permission of the local authorities, who may give it conditionally by forbidding the carrying of banners. The Minister of the Interior is empowered to interdict associations, when circumstances demand, either generally or temporarily, or in certain districts. Incitement to a criminal act, or to resistance of the law, justifies the authorities in breaking up a meeting or a procession, even though the incitement is not specific, but is conveyed in general terms, or is qualified by contingent conditions.

Colonies.—The most important colonies of the Netherlands are the Dutch East Indies, especially the fertile and populous island of Java, which, before the war in Sumatra, yielded a large surplus revenue that was expended on railroads in Holland. The financial and political difficulties in the East Indies have suggested in Germany the scheme of acquiring those rich islands for the Imperial Government. The area and population of the colonial possessions of the Netherlands are shown in the following table. The populations are from official estimates, mostly relating to the year 1883. The native population of Timor and Sumba is not included in enumeration below:

POSSESSIONS.	Square miles.	Population.
East Indies :		
Java and Madura.....	50,848	20,680,102
Sumatra, west coast.....	46,200	1,116,169
Sumatra, east coast.....	16,282	161,668
Benkulen.....	9,576	147,754
Lampongs.....	9,975	119,158
Palembang.....	61,152	619,453
Atjeh.....	6,370	580,369
Riau-Lingga.....	17,325	98,073
Banca.....	4,977	71,399
Billiton.....	2,500	32,238
Borneo, west coast.....	58,926	375,298
Borneo, South and East Districts.....	144,788	608,926
Celebes.....	45,150	854,606
Menado.....	26,600	547,189
Molucca Islands.....	42,420	346,055
Timor and Sumba.....	21,840	80,757
Bali and Lombok.....	3,990	1,358,950
New Guinea.....	150,755	500,000
Total, East Indies.....	719,674	27,729,164
West India Islands :		
Curaçao.....	210	25,015
Aruba.....	69	6,177
St. Martin.....	17	3,891
Bonaire.....	95	4,081
St. Eustache.....	7	2,460
Saba.....	5	2,370
Total, West Indies.....	408	48,444
Surinam.....	46,060	55,583
Total possessions.....	766,187	27,828,141

The budget for the East Indies for 1886 estimates the total receipts at 134,217,669 guilders, of which amount 30,841,790 guilders are derived from sales of coffee, 244,530 from cinchona, 4,351,346 from tin, 21,376,000 from the opium monopoly, 10,291,200 from customs, 19,916,000 from the land revenue, 7,167,000 from the salt-tax, 1,338,000 from the post-office and telegraphs, 1,015,000 from railroads in Holland, 5,027,000 from railroads in India, and 32,649,803 from various other sources.

The expenditures are taken at 139,655,706 guilders, leaving a deficiency of 5,438,037 guilders. The budget for the colony of Surinam makes the revenue 1,321,543, and the expenditure 1,513,021 guilders. The revenue of Curaçao is estimated at 614,947 guilders.

The imports of the East Indies in 1884 amounted to 162,019,000 guilders in merchandise and 12,740,000 guilders in specie; the exports to 189,715,000 guilders in merchandise and 1,085,000 in specie.

In the beginning of 1886 there were 587 miles of railroad completed in Java, and 120 miles in progress. The receipts of the Netherlands India Railway Company in 1884 were 3,896,544 guilders, expenses 1,183,623 guilders; the receipts to the Government lines 4,251,447 guilders, expenses 2,088,329 guilders. There were in 1884 3,590 miles of telegraph lines in Java and 1,290 miles in Sumatra.

Crisis in India.—Many Netherlanders who are familiar with the circumstances in Java are of the opinion that the East Indian empire can not long be maintained. Rumors of the prospective sale of these possessions are frequently circulated, but they originate for the most part in Germany. The chief reason for the failure

of the operations for the subjugation of the Acheenese is that the East Indian army is unreliable, and that the soldiers fraternize with the rebels. In March an extensive conspiracy was unearthed in Banjumas, Java, and papers implicating influential persons in many parts of the island, including a number of Europeans, were found in the house of a Mohammedan hadji. On May 20 an insurrection in the district of Buitenzorg was suppressed by the troops, who killed 50 of the 500 insurgents, who had risen against the demands of the proprietor of the land on which they dwelt.

The sugar industry, which has existed of late years only by means of advances from the banks, is threatened with extinction through the withdrawal of credit and recall of their loans by the capitalists. The stoppage of sugar-culture will greatly augment the political and social dangers in the Dutch East Indies, for the native aristocracy depend largely on the rents from the sugar-plantations for their incomes, and hundreds of thousands of the working population are employed in this industry. The amount paid in wages on the 195 plantations is 30,000,000 guilders per annum.

The Advanced Liberals have advocated a radical reform in the land and government system of Dutch India, especially abolition of the feudal arrangements, abandonment of state ownership of land, and the opening of the resources of Java, as well as the other islands, to private enterprise and capital of every nationality. The Government proposed to assist the sugar-producers with advances, but the committee of the Chamber decided that the amount of aid offered was entirely inadequate, and suggested the suspension or abolition of fiscal arrangements that weighed upon the industry. The Chamber decided to grant relief in this form. The bill, which was accepted by the Government, remits the sugar export duty for five years, beginning with 1887-'88, abolishes the Government rents, and defers for five years the payment of half of the interest due the Government.

The War in Acheen.—The military policy that has been adopted in Acheen is called the concentration system. It is simply the withdrawal of the troops from the occupied posts in the enemy's country and the abandonment of offensive hostilities. The English in Penang, coveting this rich district, have furnished the rebels with arms and war materials of all kinds. Lately they have raised complaints about the inability of the Netherlands to establish settled order, and urged Great Britain to interfere for the protection of their pepper-trade with the Acheenese. They speak of demanding damages from the Netherlands Government for piracies committed by the rebels. The troops in Acheen suffer from a sickness called *berri-berri*. The etiology of the disease is not known, nor has any remedy been found. It begins with lameness of the legs, which gradually lose their powers, become swollen, and are

the seat of intense pain. Hundreds of invalids are taken back to Java on every Government steamer, and a large proportion die. The civil and military Governor of Acheen, Gen. Demmeni, succumbed to the climate in November, 1886, and was succeeded by Col. Teyen in the military command. Maj. de Kroes, a distinguished officer of the staff, committed suicide while demented during an attack of jungle-fever. In July an Acheenese robber, named Tuku Omar, captured a steamship in the port of Riga, and killed the Europeans on board, except the captain's wife and the engineer, whom he carried away as prisoners and held for a ransom, encouraged by the example of the Rajah of Tenom, who received the ransom demanded for the captive English sailors. Two expeditions were sent after the robber, one of which brought back as hostages some of his wives and a score of other prisoners. The British Government sent several notes with regard to the engineer, who was an Englishman. The Dutch authorities finally secured the delivery of the two prisoners by paying the pirate \$25,000. The Dutch fleet, consisting of old, dilapidated gunboats, is unable to keep the passage between the north point of Sumatra and the adjacent small islands free from Acheenese pirates. This is a part of the most direct route to Europe, but mail-steamer and other vessels have been warned to take the outside course. The Acheenese rebels have become very bold since the Dutch troops were withdrawn from all the outposts to the settlement of Kotta Raja at the northern end of Sumatra, where they have constructed new forts. The patrols are constantly fired on, and no attempts are made to pursue the foe into the jungle. An abundant supply of arms and ammunition is smuggled in from the English colony, and even cannon have been furnished to the rebels, who laid siege to Fort Segli, on the coast. The little garrison, subjected to a regular bombardment, endeavored in vain to protect themselves with breastworks made with bags of sand. The Netherlands Government attempted in 1886 to enlist a new European force of several thousands, but the liberal bounty offered attracted only a few volunteers.

NEVADA. State Government.—The following were the State officers during the year: Governor, Jewett W. Adams, Democrat; Lieutenant-Governor, C. E. Laughlin; Secretary of State, J. M. Dorner; Treasurer, George Tuffly; Comptroller, J. F. Hallock; Attorney-General, W. H. Davenport; Superintendent of Public Instruction, C. S. Young; Surveyor-General, C. S. Preble. Supreme Court: Chief-Judge, C. H. Belknap; Associate Justices, O. R. Leonard and Thomas P. Hawley.

Constitutional Amendments.—Three constitutional amendments were voted upon at the November election. The first amendment changed the manner of amending the Constitution. The Constitution, as it existed before such amendment,

required the concurrence of two Legislatures before an amendment could be submitted to the people. The amendment in question authorizes the submission to the people at the next general election after the amendment has been passed by a majority of the two houses of one Legislature. The second amendment has reference to the qualifications of electors. The Constitution, as it existed before such amendment, required only six months' residence in the State and thirty days in a district to entitle a citizen of the United States to vote. The amendment in question requires a year's residence in the State and ninety days in a district. The third amendment provides for the investment of the school fund. The Constitution, as it existed before such amendment, permitted the school fund to be invested in State and United States bonds only. The United States bonds have so advanced in price that an investment in them furnishes very little revenue for schools. The State has no outstanding bonds in which to make investments, and on this account there is now on hand \$142,584 of the school fund drawing no interest.

The Constitution requires that proposed amendments shall be passed by a majority vote of each house of the Legislature at two successive sessions, and be entered upon the journals of the respective houses. The amendments in question were first passed at the session of the Legislature in 1883, but were not then entered upon the journals of either house. This has been held in some of the States to be a fatal defect. These amendments were again passed at the session in 1885, and were at that session properly entered upon the journals of the respective houses. The Constitution further provides that, after amendments have been passed by two successive sessions of the Legislature, "it shall be the duty of the Legislature to submit them to the people in such manner and at such time as the Legislature shall prescribe." The Legislature made no provision for submitting these amendments to the people, but the county commissioners of the several counties issued proclamations for their submission in the usual way, and they were adopted by a majority vote of from 5,745 to 8,995. There is great doubt as to the validity of these amendments, and the Governor advises that they be again passed by the Legislature and properly entered upon the journals of the two houses. This will make the legislative action complete. "If this could be done immediately," he says, "these amendments could again be submitted under a special act to a vote of the people during the present session of the Legislature, and in time to give this Legislature an opportunity to act under them."

Irrigation.—On this subject the Governor, in his message to the Legislature of 1887, says: "A speedy enactment of laws by this Legislature, or by Congress, which will aid our people in the introduction of some system of irrigation, is very important. The future prosperity of

our State may be truthfully said to be largely dependent upon favorable legislation with regard to this question. The agricultural resources of Nevada have been underestimated. Few of our own people apprehend even in imagination the possible material resources of the State if they could be developed and fostered by a liberal and comprehensive system of irrigation. It has been demonstrated by actual experiment that, by the aid of water, land before supposed utterly worthless has been made to produce good crops. A knowledge of this fact has induced many people to secure and monopolize the most accessible streams of water in our State, one tendency of which is to retard and perhaps prevent that immigration which we so much need, as much of our land is unproductive without irrigation. It is true that there is much waste land in the State, and vast tracts that are only fit for grazing purposes; but wherever water can be obtained the land is exceedingly productive. Nearly every crop of grain, cereals, and fruit that can be raised in the temperate zone can be produced in abundance upon the sage-brush lands of Nevada when irrigated. The only impediment to settlement is the cost of the construction of hydraulic works for irrigation. Probably as much as 95 per cent. of the water in all the streams of Nevada now runs to waste. If it could be saved and used upon land, a good many hundreds of thousands, and perhaps millions, of acres in this State might be reclaimed and converted into homes for settlers."

Shipments.—The following is a list of the principal articles exported from Nevada during 1885 and eight months of 1886:

ARTICLES—IN CAR-LOADS.	1885.	First eight months of 1886.
	Pounds.	Pounds.
Barley.....	2,697,620	121,860
Base-metal.....	3,227,220	1,569,820
Borax.....	5,505,620	4,714,990
Brick.....		70,000
Cattle.....	*44,178,300	\$1,650,000
Copper.....	92,500	25,300
Copper matte.....	183,360	249,910
Hay.....	5,881,850	1,658,700
Hides.....	564,300	371,980
Hogs.....	103,000	
Horses.....	*1,794,500	\$1,000,000
Ice.....		418,850
Iron, and its manufacture.....	199,110	156,800
Lead.....	14,512,600	8,439,560
Lumber, and forest products.....	13,276,020	12,274,710
Machinery.....	262,140	172,960
Marble.....	46,000	41,400
Oats.....	1,195,710	216,800
Ores.....	7,914,460	5,176,030
Ores, concentrations.....	888,820	1,101,370
Potatoes.....	718,490	2,127,480
Salt.....	90,980	196,000
Sheep.....	*3,640,000	\$3,550,000
Soda.....	893,220	411,610
Vegetables, other than potatoes.....	62,920	40,510
Wheat.....	3,463,230	463,400
Wood.....	67,660	860,000
Wool.....	2,881,230	2,460,890

* Cattle, estimated, 40,302.

+ Cattle, estimated, 28,512.

* Horses, estimated, 1,620.

Horses, estimated, 900.

* Sheep, estimated, 16,880.

+ Sheep, estimated, 16,110.

Finances.—The total bonded debt, exclusive of the \$380,000 5-per-cent. irredeemable State

bond in the State school fund, is \$113,000; accrued interest, outstanding warrants and deficiency claims, \$30,244.11; total debt of the State (exclusive as above) Dec. 31, 1886, \$143,244.11; cash in treasury applicable to payment of debt, \$226,732.65.

The following statement gives the transactions of the State Treasury for 1885 and 1886:

ITEMS.	Net cash.	Bonds.
Balance in the treasury Jan. 1, 1885.....	\$355,768 25	\$727,000 00
Actual receipts from all sources.....	734,702 58	.....
Purchase of United States bonds.....	.....	100,000 00
Purchase of State bonds.....	.....	20,000 00
Total.....	\$1,150,470 88	\$847,000 00
Actual disbursements.....	\$702,670 52	.....
State bonds redeemed.....	.....	54,000 00
Balance in treasury Dec. 31, 1886, outstanding warrants deducted.....	447,800 81	793,000 00
Total.....	\$1,150,470 88	\$847,000 00

The total disbursements from the State Treasury for actual expenses were \$473,294.28; deficiency claims allowed, \$18,118.88; amount allowed for salaries of assessors and collectors, \$52,006.27; express charges on cash transmitted to State Treasury, \$1,018.25; amount allowed for armories, \$14,550; total actual expenses for 1885 and 1886, \$553,982.63; average expenses per annum, \$276,991.31.

The revenue collected during 1885 and 1886, applicable to the payment of the actual expenses of the State government, was as follows:

By counties.....	\$508,767 10
By State Comptroller for insurance licenses.....	8,399 28
By State Comptroller for drummers' licenses.....	20,142 25
By Secretary of State, fees, sales of statutes, etc.	2,728 28
By Clerk of Supreme Court for fees, etc.....	1,608 60
Of State school fund for salaries, etc., in Land Office.....	18,449 61
Of State school fund for salary of attorney at Washington.....	1,960 49
Of general school fund for salary of Superintendent of Public Instruction.....	4,000 00
Of general school fund for traveling expenses, Superintendent of Public Instruction.....	500 00
By sale of lamp.....	8 00

Total..... \$561,744 61

Receipts over expenditures for 1885 and 1886. \$1,761 98

The year 1886 shows a depreciation in property valuations to the amount of \$714,411.68, as compared with 1885, and of \$848,421.70 as compared with 1884; and a decrease in the taxable proceeds of mines of \$884,989.57 as compared with 1885, and of \$899,339.71 as compared with 1884; but this result was expected as to the taxable proceeds of the mines, because of the legislation of 1885 making taxable only the actual net proceeds above all costs; and depreciation in property valuations was also expected in some counties, but entirely unlooked for in others where there seems no good reason for it. The State tax on the proceeds of mines in 1878 amounted to \$207,413.45, and there has been a steady decrease until for 1886 it was only \$4,989.09.

The following statement shows the assessed value of property by counties for the year 1886, exclusive of the proceeds of the mines:

COUNTIES.	Value of real estate.	Value of personal property.	Value of taxable property.
Churchill.....	\$357,167 00	\$180,602 00	\$537,769 00
Douglas.....	459,507 00	277,411 00	736,918 00
Elko.....	2,333,158 00	1,947,016 00	4,280,169 00
Esmeralda.....	973,710 00	207,605 00	1,181,815 00
Eureka.....	1,672,152 00	976,461 22	2,648,613 22
Humboldt.....	2,133,920 62	1,177,252 54	3,811,178 16
Lander.....	1,258,796 70	538,812 25	1,792,108 95
Lincoln.....	206,081 50	186,178 50	342,260 00
Lyon.....	853,022 00	561,073 00	1,419,095 00
Nye.....	275,492 00	256,500 00	531,992 00
Ormsby.....	1,067,849 00	720,543 00	1,788,392 00
Storey.....	1,602,754 50	513,395 50	2,176,150 00
Washoe.....	2,864,420 00	1,822,455 00	4,186,875 00
White Pine	377,220 00	438,827 00	816,047 00
Total.....	\$16,440,245 82	\$9,308,632 01	\$25,748,877 83

The net proceeds of mines as assessed amounted to \$554,346.62. The State tax of 90 cents amounted to \$231,739.89, and the county taxes to \$423,428.62.

Silver-Mining.—The leading industry of the State has greatly revived within the past year. The depressed state of public feeling caused by the abandonment of deep mining on the Comstock lode has been entirely dissipated by the recent discovery of valuable deposits of ore on the upper levels, and also in other parts of the State. The output of bullion has been thereby very largely increased.

Live-Stock.—Next in importance to silver is the live-stock interest—especially the raising of cattle. Nevada possesses some of the finest cattle-ranges in the world. The many nutritious grasses, notably the bunch-grass, that grow on the mountain-sides, afford excellent pastureage for summer, while the many varieties of sage-brush, which grow everywhere on the desert plains and rolling hills, especially the white sage, serve as excellent winter food, being considered by many far superior in strength and nutrition to any of the grasses. Except in Nevada and other portions of the Great Basin, there is no country where the grasses possess the property of curing themselves unaided by the labor of man. Large sums of money have been expended by the more enterprising breeders in importing superior stock for the purpose of improving the grade of cattle. While the improvement has been marked in giving great size and weight, it has been found that the improved cattle are admirably adapted to the varied and extensive ranges.

Political.—The Democratic State Convention met at Elko on September 9, and nominated a ticket as follows: Member of Congress, J. H. McMillan; Governor, Jewett W. Adams, the present incumbent; Lieutenant-Governor, T. J. Bell; Secretary of State, John T. Brady; Judge of the Supreme Court, C. H. Belknap; Clerk of the Supreme Court, John McKernan; Attorney-General, J. F. Boller; State Comptroller, R. Sadler; State Treasurer, Jerry Schooling; Surveyor-General, S. H. Day; Su-

perintendent of Public Instruction, A. E. Kay; State Printer, Henry Duffey; District Judges, Henry Rives, A. L. Fitzgerald, and H. T. Creswell. The following are the chief planks of the platform :

We demand of the Administration at Washington that it shall second the efforts of the Democratic representatives in Congress to give the people free coinage of silver, notwithstanding the formidable combinations existing between the gold rings, national banks, and the national Republican party in California in refusing to insert a silver plank in their platform, deserves the condemning of the silver-producing people of the mining regions of the Pacific coast.

We indorse the policy of applying the surplus in the National Treasury, as fast as it may accumulate, to the payment of the national-debt, retiring as rapidly as practicable the national bank circulation and the direct issue by the national Government of legal-tender Treasury notes, gold and silver coin, and coin certificates.

We demand the immediate abrogation of the Burlingame treaty, and the total suppression of Chinese immigration to American soil, and we favor legislation providing for the deportation of all Chinese in the United States, and we recommend the exclusive patronage of white labor and its products.

We command the policy of the present Administration in strictly enforcing the tariff laws, the beneficial effect of which is so happily illustrated by the fact that the great wool-growing industry of the country receives more protection now by collecting the high import duties on wool, than it did under the high tariff of 1867, under the practice by Republican officials of letting foreign wool slip through our custom-houses at less than one half of said duties.

In behalf of the mining industry of this State, and of the miner—the pioneer of civilization on this coast—as well as of the whole people of Nevada, we earnestly recommend to the authorities at Washington the immediate opening and permanent running of the United States Mint at Carson City, to the end that our mines may be relieved from the unnecessary and burdensome expense of shipping their bullion three thousand miles away for market, and we hereby command the efforts of Senator Fair to accomplish this result.

We are in favor of liberal wages and free labor, All associations formed for the purpose of developing intelligence, promoting the welfare and protecting the interests of the laborer and mechanic, and to enable them successfully to contend for and maintain their rights by peaceful and efficient means against power and oppressive combinations, should be encouraged and expressly sanctioned by law; and the Democratic party of Nevada is in favor of the enactment of liberal laws fostering and encouraging the formation of co-operative and protective societies among all classes of laboring-men.

The Republican State Convention met at Carson on September 23, and made the following nominations: For Congress, William Woodburn; for Supreme Judge, T. D. Edwards; District Judges, Richard Rising, D. W. McKenney, Mr. Biglow; Governor, C. C. Stevenson; Lieutenant-Governor, H. C. Davis; Attorney-General, John F. Alexander; Secretary of State, J. M. Dorner; Clerk Supreme Court, C. F. Bicknell; Comptroller, J. F. Hallcock; Treasurer, George Tufty; Surveyor-General, John E. Jones; Superintendent of Instruction, W. C. Dovey; Printer, J. C. Harlow.

On November 2 the Democrats elected Judges Belknap and Fitzgerald, while the Republican candidates were chosen to the remain-

ing places. The vote for Governor was: Republican, 6,493; Democratic, 5,869; majority, 594. For Surveyor-General the vote was: Republican, 6,945; Democratic, 5,429; majority, 1,516. For Congressman, the Republicans cast 6,700 votes and the Democrats 5,670; majority, 1,030. The Legislature has 14 Republicans and 6 Democrats in the Senate, and 32 Republicans and 8 Democrats in the House.

NEW BRUNSWICK. Government.—The Lieutenant-Governor is Hon. Sir Leonard Tilley; President of the Executive Council, Hon. Thomas F. Gillespie; Attorney-General, Hon. A. G. Blair; Provincial Secretary, Hon. David McLellan; Chief Commissioner, Board of Works, Hon. P. G. Ryan; Surveyor-General, Hon. James Mitchell; Solicitor-General, Hon. R. J. Ritchie; members without office, Hon. A. Harrison and Hon. Gaius S. Turner.

The total exports from New Brunswick for the fiscal year ending June 30, 1885, amounted to \$6,489,293. Of this amount, exports to the value of \$3,268,292 went to the United States, and \$2,644,681, including \$4,000 bullion, to Great Britain. The principal article of export is lumber, of which Great Britain takes the greater part; this year to the value of \$2,396,471. Fish ranks next among the exports, the United States being the best customer, this year to the extent of \$883,573 out of a total of \$1,111,498. The exports of the province compare unfavorably with those of the three previous years.

Politics.—The old question of abolishing the Legislative Council was revived once more in the Legislative Assembly at the session of 1886. A bill with that object was passed by the lower house, being supported by both parties, but was thrown out by the Legislative Council, which in turn suggested the reduction of the Executive Council to six members, and a reduction in the membership of both houses of the Legislature. This proportion was rejected by the Assembly. The lower house also rejected bills to hold only biennial sessions, and to amend the franchise by adopting manhood suffrage in provincial elections. At the close of the session the Legislature was dissolved. The elections, held in April, resulted in sustaining the Government of Mr. Blair (Liberal), who had been in power three years.

NEW JERUSALEM CHURCH. The following associations made reports to the General Convention of this Church in the United States: Canada Association, 5 societies; Illinois Association, 11 societies, 496 members; Maine Association, 5 societies, 308 members; Maryland Association, 4 societies, 239 members; Massachusetts Association, 21 societies, 1,571 members; Michigan Association, 5 societies, 185 members; Minnesota Association, 2 societies, 126 members; New York Association, 13 societies, 751 members; Ohio Association, 12 societies, 617 members; General Church of Pennsylvania, 14 societies, 497 members; and societies at San Francisco, Cal. (116 members);

and the churches in Savannah, Ga., and Topeka, Kansas.

General Convention of the United States.—The sixty-sixth General Convention of the New Jerusalem Church in the United States met in New York, May 30. One hundred and seventeen ministers and delegates were in attendance. The Rev. Chauncey Giles presided, and delivered an address on "The Use of the General Body of the Church, and the True Method of performing it." The Treasurer of the General Convention reported the total amount of the various funds belonging to it in his hands to be \$17,267. The Board of Publication returned the net assets of the Publishing-House at \$6,803, and its income for the year at \$2,919, showing a profit of \$567. The board had purchased from other publishers remainders of the editions of the "Compendium," Parsons's "Outlines of the Religion and Philosophy of Swedenborg," and "The Infinite and Finite"; had published cheap editions of the work "Among the Corn," Part I, and of "Nature of Spirit, and of Man as a Spiritual Being," by Chauncey Giles; besides church books and manuals; and was about to publish a translation of Swedenborg's posthumous work, "De Anima." The corporation of the New Church Theological School returned total assets of \$27,020, and endowment funds amounting to \$7,020. The school had been attended by ten students. The amounts of certain special funds were returned as follow: New Church Building fund, \$1,175; Rice legacy, \$7,889; Rotch legacy, \$32,759; Swedenborg Memorial fund, \$1,077; Junge-rich fund, \$34,562. The scheme of distributing Swedenborg's works, which the last fund is intended to aid, was going on in an encouraging way. Thirty-six hundred and seventy-nine copies of different works had been distributed during the year, making a total from the beginning of 78,497 copies. The Board of Home and Foreign Missions had received \$1,837, of which \$560 had been contributed for the Italian mission. It reported concerning missionary work in Tennessee, at Savannah, Ga., in Canada, and Florida, and in the foreign stations of Sweden (Stockholm and Gottenburg), Italy, and East Prussia. In Italy, Sig. Scocia was translating the works of Swedenborg into the Italian language. The literature of the New Church was also in course of publication and circulation in Sweden, Germany, and Switzerland. The General Convention approved plans for making central stations of missionary work at Chattanooga, for Middle and East Tennessee and Northern Georgia; at Savannah, for the rest of Georgia and South Carolina; and at Galveston, for Texas. The property of the Southern Missionary Society, offered by it, was accepted by the convention, for the promotion of the same end, in missionary work, which that society had in view. The formation of local auxiliary missionary societies was recommended. An amendment of the constitutional provision respecting the office of General Pas-

tor was proposed, so that the article shall read that such pastor may be invested with "power to authorize candidates, to ordain ministers, and preside over a general body of the Church, this power to be exercised only while acting as presiding minister of an association or of the General Convention, and the office and rank of General Pastor to be also subject to such limitations as to its continuance as the Association may prescribe." This, and other propositions which were offered in modification of it, can be acted upon after six months' notice.

The Sabbath - School Association of this Church, at its annual meeting, made provision for the publication of graded manuals, and approved of the selections by the Graded Lesson Committee of lessons for the year, drawn from the Old and New Testament word and from the little work of Swedenborg on "The Doctrine of Faith."

British New Church Society.—The sixty-seventh meeting of the British New Church Society was held in London, June 22. The Rev. Dr. Tafel presided. The committee's report showed that 2,620 volumes in English and 2,000 volumes in Welsh had been printed during the year; while, during the same period, 3,226 volumes in English, 30 volumes in Latin, 14 volumes in French, 381 volumes in Welsh, 4 volumes in German, and 22 volumes of the Swedenborgian philosophical works had been disposed of. Five free libraries had received grants. Clergymen and theological students applying for aid had received 260 volumes. The committee had undertaken to publish a concordance to all the theological writings of Swedenborg, in monthly parts, which publication will probably extend over five years.

British Annual Conference.—The British Annual Conference of the New Church was held in August, at Heywood in Lancashire. The Rev. R. R. Rodgers was chosen president. Delegates were in attendance, with a fraternal address, from the General Convention in the United States. Reports on the Augmentation fund and on the Italian mission were considered. A scheme respecting Sunday - school examinations was discussed, and discretionary power in the matter was left with the Sunday-School Union. The Conference pensions to widows and aged ministers were agreed to. Notice was taken of the fact that the Rev. J. F. Potts had completed his fourteen years of arduous labor in the preparation of a concordance of Swedenborg's theological works, and that the book had been adopted by the Swedenborg Society for publication.

NEWFOUNDLAND. Government.—The death of the late Governor, Sir John Hawley Glover, revived the commission of Chief - Justice Sir Frederick Carter as Administrator of the Government pending the appointment of a new Governor. The Imperial Government appointed Sir Ambrose Shea, a native of the colony, and long distinguished as the leader of the Roman Catholic party. The appointment pro-

voked such hostility among the Protestants that the Imperial Government canceled it early in February, and appointed Sir G. William des Voeux, K. C. M. G., lately Governor of the Fiji Islands, who arrived in the colony on April 22.

Finances.—The total revenue for the year 1885 amounted to \$1,009,222, showing a considerable deficit as compared with 1884. The total expenditure was \$1,375,982. The consolidated and debenture debt of the colony on Dec. 31, 1885, amounted to \$2,149,597.52, and the floating debt to \$148,341.01. The estimated expenditure for 1886 is \$1,214,094, and the estimated revenue \$1,218,884.

Industries.—In the course of his speech from the throne at the opening of the General Assembly on February 11, the Governor said: "The results of our staple industries for the last year were peculiarly unfavorable; not only was the seal-fishery very deficient, but its produce obtained only indifferent sales. The catch of fish along the shore was also below an average; while that of Labrador, with cod and herring, though fairly successful, was, to a certain extent, badly cured, and meeting active competition in our accustomed markets, was sold at unremunerative prices. The fishery on the banks furnished the only instance of a prosperous issue, and it is satisfactory to observe that this enterprise gives cheering promise of becoming a more and more reliable resource. Agriculture yielded generally fair returns, the more important crops having been both sound and abundant. Mining pursuits during the year showed improvement. There was an increased export of ores, and late market quotations encourage the hope of active operations in the next season. The returns of native ship-building give a tonnage slightly in excess of that of the preceding year."

Aid for the Unemployed.—On March 31 a mob of unemployed workmen invaded the Parliament buildings while the House was sitting, and some of them placed a flag on the table of the House. The immediate cause of the demonstration was the rejection by the Assembly of a number of resolutions moved by Sir Ambrose Shea, having reference to the prevailing destitution and want of employment for the people, and pledging the House to the adoption of measures for the extension of railways as a means of opening up the country, as well as of providing employment for the people. Subsequently an act was passed providing for the encouragement of agriculture. This act, which had been foreshadowed in the speech from the throne, provides for the establishment of agricultural colonies at certain places where the land is suitable. It also grants aid to poor settlers, and arranges for the removal to these settlements of people who are unable to make a living by fishing alone, and grants a bounty for each acre of land brought under cultivation. A sum of

\$60,000 was voted for the purposes of the act, to be expended during three years.

Fisheries.—The expiration of the Treaty of Washington on July 1, 1885, left Newfoundland in a position somewhat similar to that of the Dominion of Canada with regard to the United States; and the colony adopted a policy similar to that of the Dominion. American fishermen were permitted to fish for the remainder of the season within the territorial waters of the colony, on the understanding that the President of the United States would, at the next meeting of Congress, recommend the appointment of an International Commission. But, as Congress failed to adopt this suggestion, the Newfoundland Government adopted similar tactics to those of Canada in the enforcement of the International Convention of 1818, forbidding the purchase of bait or ice in the colony by Americans, and prohibiting fishing operations by them within three miles of the coast, etc. A bill passed by the Assembly imposing an export duty on bait was reserved by the Governor for her Majesty's consideration.

The French Shore Question.—On Nov. 14, 1885, an agreement was signed at Paris between England and France with reference to the long-standing dispute about the rights of French fishermen on that part of the coast of Newfoundland known as the French shore. The Colonial Legislature refused to ratify the agreement. The terms of the arrangement were as follow :

The undersigned commissioners, who have been appointed by the Governments of Great Britain and France in order to find means, without touching the treaties at present in force, which it is not their duty either to modify or to interpret, of preventing and regulating disputes relative to the exercise of the fishery on the coasts of Newfoundland, have framed in concert the following regulations, subject to the approval of their respective Governments:

ARTICLE 1. The Government of her Majesty the Queen of the United Kingdom of Great Britain and Ireland engages to comply with the following regulations for securing to French fishermen, in execution of the treaties in force, and particularly of the Declaration of 1783, the free exercise of their industry on the coasts of Newfoundland without any interference or obstruction whatever on the part of British subjects.

2. The Government of the French Republic engages on its part, in exchange for the security accorded to French fishermen by the application of the regulations contained in the present arrangement, not to raise any objections against the formation of establishments necessary for the development of every industry other than that of the fisheries on those portions of the coasts of Newfoundland comprised between Cape St. John and Cape Ray which are tinted in red on the map hereto annexed, and which do not appear in the statement also annexed, describing the portions of the coast to which the present paragraph does not apply. It engages equally not to disturb the resident British subjects in respect of the establishments actually existing on those parts of the coast comprised between Cape St. John and Cape Ray passing by the north, but no new ones will be established on those parts of the coast described in the statement mentioned in the preceding paragraph.

3. Notwithstanding the prohibition stipulated at the

end of the second paragraph of the preceding article, in the case where a mine should be discovered in the vicinity of any one of the parts of the coast comprised in the statement annexed to the present arrangement, the Government of the French Republic engages not to raise any objection to the persons interested enjoying for the working of such mine facilities compatible with the free exercise of the French fisheries. With this object a wharf can be constructed on a point of the coast to be specified by common agreement between the commanders of the cruisers of the two nations. The constructions necessary for the working of the mine—such as dwelling-houses, workshops, warehouses, etc.—shall be erected on that part of the territory situated beyond the limits specified in the annexed statement for the exercise of the French fisheries. They may be connected with the wharf by one single railroad of one or two lines. In order to facilitate the operations of loading and unloading, shelters and storehouses may, nevertheless, be constructed on each side of the railroad for the provisional storage of minerals and mining plant on a space not exceeding fifteen metres on each side of the railroad, such space to be inclosed by a hedge or some sort of inclosure. No construction other than the wharf, the railway, and the shelters and storehouses above mentioned can, in conformity with the last stipulation of the second paragraph of the preceding article, be erected on the part of the coast set aside for fishing in the limits fixed in the annexed statement. The stipulations of the present article shall apply equally to the working of a mine within these limits, on the condition that it shall have been mutually agreed upon previously by the commanders of the cruisers of the two nations that the working of the mine shall not be of such a nature as to hinder the free exercise of the French fisheries.

4. It is understood that French citizens shall retain in full on all those parts of the coast comprised between Cape St. John and Cape Ray the right as it is defined by treaty of fishing, of drying and curing their fish, etc., as well as of cutting wood in all parts except on inclosed property, necessary for fishing-stages, huts, and fishing-boats.

5. The superintendence and the police of the fisheries shall be exercised by the ships of war of the two countries in accordance with the conditions hereafter set forth, the commanders of these ships having sole authority and competency under these conditions in all matters relating to the fisheries and the operations which result therefrom.

6. English and French fishing ships or boats shall be registered in accordance with the administrative regulations of the country to which they respectively belong, and shall bear distinctive marks in a visible manner, which will allow of their being easily recognized at a distance. The captains, masters, or persons in charge must have with them documents establishing the nationality of their ships or boats.

7. The commanders of cruisers of each nation shall notify mutually to one another any infractions which may be committed by the ships or boats of the other nation of the regulations set forth in the preceding article.

8. The cruisers of the two countries shall have authority to record all infractions of the treaties actually in force, and especially of the Declaration of 1783, according to the terms of which British subjects are not “to interrupt in any manner the fishery of the French by their competition during the temporary exercise of it which is granted to them upon the coasts of Newfoundland.”

9. On a complaint being made by French fishermen, or on a demand being made by them with a view to their being enabled to exercise their right of fishing, the commanders of the English cruisers shall oppose, and, in case of no English cruisers being in sight, the commanders of the French cruisers may oppose, every fishing operation of British subjects which may interrupt the industry of such French fishermen;

they shall remove the boats or ships causing the obstruction to such industry. With this object the commanders of French cruisers may address to the offending parties the necessary warnings, and in case of resistance take their fishing implements, in order to place them on shore or to give them up into the hands of the commanders of her Britannic Majesty's cruisers. In cases in which no interruption shall result to French fishermen, and in which neither a complaint nor a demand has been made to enable them to exercise without difficulty their right of fishing, the commanders of French cruisers shall not oppose the fishing operations of British subjects.

10. In cases in which residents on shore may interfere with or disturb by their acts the drying and the preparation of fish, and in general the various operations which are a consequence of the exercise of the French fishery on the coast of Newfoundland, a report verifying the damage caused shall be drawn up by the commanders of the cruisers of her Britannic Majesty, and, in their absence, by the commanders of the French cruisers. In the latter case the report shall be admitted in evidence in the judicial proceedings to be taken thereon by the commanders of her Majesty's cruisers in the exercise of their functions as justices of the peace.

11. If an offense is committed or damage caused, the commanders of cruisers of the nationality to which the offenders belong, and, in their absence, the commanders of the cruisers of the nationality to which the plaintiffs belong, shall estimate the gravity of the facts brought to their knowledge, and shall record the damage sustained by the plaintiffs. They shall draw up, should occasion require it, in accordance with the forms in use in the countries of the two nations respectively, a report as to the verification of the facts such as it may result, as well from the declarations of the interested parties as from the evidence taken in the matter. This report shall be admitted in evidence in the judicial proceedings to be taken thereon so far as their powers extend by the commanders of the cruisers of the nationality to which the offending party belongs. Should the matter appear to be of sufficient gravity to justify such a step, the commander of the cruiser of the nationality to which the plaintiff belongs shall have the right, if no cruiser of the nationality to which the offender belongs is in sight, to secure either the person of the offender or his boat, in order to give them up into the hands of the commanders of the cruisers of the nationality to which they belong.

12. The commanders of British and French cruisers shall administer immediate justice within the limits of their powers with regard to the complaints brought to their notice either by the interested parties directly or through the commanders of the cruisers of the other nation.

13. Resistance to the directions or injunctions of commanders of cruisers charged with the police of the fisheries, or of those who act under their orders, shall, without taking into account the nationality of the cruiser, be considered as resistance to the competent authority for repressing the act complained of.

14. When the act alleged is not of a serious character, but has nevertheless caused damage, the commanders of cruisers shall be at liberty, should the parties concerned agree to it, to arbitrate between them, and to fix the compensation to be paid.

15. The French Government abandons for its subjects the salmon-fisheries in rivers, and only reserves a right to the salmon-fishery in the sea, and at the mouth of rivers up to the point where the water remains salt, but it is forbidden to place fixed barriers capable of impeding interior navigation or the circulation of the fish.

16. French fishermen shall be exempt from the payment of any duties on the importation into that part of the Island of Newfoundland, comprised between Cape St. John and Cape Ray, passing by the north,

of all articles, goods, provisions, etc., which are necessary for the prosecution of their fishing industry, for their subsistence, and for their temporary establishment on the coast of this British possession. They shall also be exempt on the same part of the coast from the payment of all light and port dues and other shipping dues.

17. French fishermen shall have the right to purchase bait, both herring and capelin, on shore or at sea, on the shores of Newfoundland, free from all duty or restrictions, subsequent to the 5th of April in each year and up to the close of the fishing-season.

18. The employment of French subjects in the proportion of one guardian with his family to each harbor is authorized for the guardianship of the French establishments out of the fishing-season. In the large harbors where the temporary fishing-rooms of the French are so distant from each other as to render it impracticable for one guardian to take care of all such establishments, the presence of a second guardian with his family shall be authorized.

19. All fishing-boats, all their small boats, all rigging, gear, nets, lines, buoys, or other fishing implements whatsoever, found or picked up, shall, as soon as possible, be delivered to the competent authorities of the nation of the salvor. The articles saved shall be restored to the owners thereof, or to their representatives, by means of the above-mentioned competent authorities, the interest of the salvors being previously guaranteed. The indemnity to be paid to the salvors shall be fixed in accordance with the law of the respective countries in such matters.

20. The provisions of the present arrangement, with the exception of those contained in articles 1, 2, and 18, shall be applicable solely for the time during which the treaties accord to the French the right of fishing and drying their fish. In faith of which the undersigned commissioners have drawn up the present arrangement, subject to the approval of their respective Governments, and have signed the same. Done at Paris, in duplicate, the 14th of November, 1885.

FRANCIS CLARE FORD,
EDMUND BURKE PENNELL.

NEW HAMPSHIRE. (For census statistics of population, area, etc., see "Annual Cyclopædia" for 1884.) **State Government** (to June, 1887).—Elections occur biennially in November of the even years; legislative sessions biennially in June of the odd years. Governor, Moody Currier, Republican; Secretary, Ai B. Thompson; Deputy Secretary, and Editor of State Papers, Isaac W. Hammond; Treasurer, Solon A. Carter; Public Printer, John B. Clarke, Manchester; Insurance Commissioner, Oliver Pillsbury; Librarian, William H. Kimball; Superintendent of Public Instruction, James W. Patterson; Adjutant-General, Augustus D. Ayling; Secretary of Board of Health, Irving A. Watson; Secretary of Board of Agriculture, James O. Adams*; Secretary of Board of Equalization of Taxes, Charles A. Dole; Railroad Commissioners—Henry M. Putney, Edward B. S. Sanborn, and Edward J. Tenney; Bank Commissioners, Buel C. Carter † and George E. Gage; Supreme Judicial Court—Chief-Justice, Charles Doe; Associate Justices, Isaac W. Smith, William H. H. Allen, Lewis W. Clark, Isaac N. Blodgett, Alonzo P. Carpenter, and George A. Bingham. Attorney-General,

* Died Feb. 7, 1887. Nahum J. Batchelder appointed to fill the vacancy.

† Died Dec. 10, 1886. Charles E. Cooper appointed to fill the vacancy.

eral, Mason W. Tappan.* Law Reporter, William S. Ladd.

Political.—The biennial election, 1886, was held for the choice of State and county officers, members of the Legislature, and two members of Congress. The Republican party nominated Charles H. Sawyer for Governor, the Democratic party nominated Thomas Cogswell, and the political Prohibitionists nominated Joseph Wentworth. The Republican platform reaffirmed the party's devotion to the cardinal doctrines that had animated it since its organization in 1856—equal rights and privileges to all men before the law; a free ballot; the exercise of that ballot unobstructed by intimidation or fraud, and an honest count in all elections South and North; abhorrence of violence and murder as a means of carrying elections; honest money, as opposed to irredeemable paper currency and unlimited silver coinage; the protection of American industry and capital, whether engaged in agriculture, manufactures, or commerce, by a proper tariff; universal education; a faithful administration of the laws; ten hours of labor, and a full sympathy with all just demands of workingmen; the principles of prohibition that have prevailed as the policy of the State for thirty years, to reduce to the minimum the evil of the sale and use of intoxicating liquors; reform in the civil service, and opposition to anarchism and communism, under whatever guise. The Democratic platform pledged reform of abuses in the years of the Republican party's misrule, and declared that Federal taxation should be exclusively for public purposes, and should not exceed the needs of the Government economically administered; a readjustment of the tariff on this basis, keeping in view the principle that the burden of taxation should fall most heavily on the luxuries of the rich, and most lightly on the common necessities of life; that the rights of labor must be fostered and cherished; that they favor the principle of arbitration in settlement of differences between labor and capital, and that laws be enacted for that purpose; the enactment of laws making ten hours the maximum limit of a day's labor in manufacturing establishments, and providing weekly payments in corporations and manufacturing concerns; the platform denounces lawlessness and anarchy, by whomsoever inaugurated; it recognizes the evils of intemperance, sympathizes with all well-directed efforts to eradicate these evils, and believes a judicious license law, properly enforced, the best remedy therefor, and that it will promote the cause of temperance. The Prohibition party acted in opposition to the Republicans (who had placed upon the statute-book all prohibitory laws existing in the State, and sought their enforcement), and with the Democrats. The result of the gubernatorial vote was about as follows: Charles H. Sawyer, Republican, 37,795 votes;

Thomas Cogswell, Democrat, 37,295; Joseph Wentworth, Prohibitionist, and scattering, 2,210. Sawyer's plurality, 500. There being no majority, the choice will fall to the Legislature, in joint convention, which is Republican. For the Senate, thirteen Republicans and nine Democrats were chosen, leaving two districts unrepresented. The House will consist of 169 Republicans and 137 Democrats, giving, on joint ballot of the two houses, 36 Republican majority. The Governor's Council has two Republicans and one Democrat chosen, with two vacancies to be filled by the Legislature. The Republicans chose their officers in Hillsborough, Cheshire, Sullivan, and Grafton counties; the Democrats carried Rockingham, Belknap, Carroll, and Coös counties, while Merrimack and Strafford counties were officered in part from each party. Concord, Manchester, Nashua, and Portsmouth chose Democrats for mayor; but the City Councils, except in Portsmouth, are Republican. Dover and Keene elected full Republican boards of officers. In the First Congressional District Luther F. McKinney, Democrat, appears to have a small plurality over Martin A. Haynes, the present member. A recount of votes in this district is asked and expected. In the Second District, Jacob H. Gallinger, Republican, is re-elected by 1,200 plurality. The Prohibition and scattering vote in 1886 was less than in 1884.

Constitutional.—The State Constitution provides that the people, by a majority vote, may call a convention to consider amendments to that instrument each seventh year. That opportunity occurred Nov. 4, 1884, but was lost. The following Legislature provided that another vote be taken March 9, 1886, and a majority of 1,516 in favor was the result. It will devolve on the Legislature of 1887 to fix a time for the holding of such convention, and vote a sum necessary for its expenses.

Finances.—Cash on hand June 1, 1885, \$69,991.47; receipts for the year from June 1, 1885, to May 31, 1886, \$1,045,862.87; total amount, \$1,115,854.34; disbursements for the same time, \$1,031,501.28; cash on hand June 1, 1886, \$84,553.06; total disbursements, \$1,115,854.34. Debt, June 1, 1885, \$3,101,360.88; assets, June 1, 1885, \$77,612.48; net indebtedness, \$3,023,748.40. Liabilities, June 1, 1886, \$3,090,577.49; assets, June 1, 1886, \$92,035.52; net indebtedness, \$2,998,541.97; decrease of debt during the year, \$25,206.43. Revenue—State tax, \$400,000; railroad-tax, \$87,090.84; insurance-tax, \$4,831.56; interest, \$1,317.58; charter fees, \$2,025; telephone-tax, \$2,453.57; all other sources, \$2,481.97; total revenue, \$500,196.97. Expenses—ordinary, \$264,442.13; extraordinary, \$31,783.84; interest, \$178,764.57; total expenses, \$474,990.54; excess of revenue over expenses, \$25,206.43. Ordinary expenses in detail—Legislature (pay-rolls), \$92,099.20; salaries, \$50,587.24; Council, \$2,600.20; State printing, \$32,426.86; support of in-

* Died Oct. 24, 1886. Jan. 27, 1887, Daniel Barnard appointed to fill the vacancy.

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digent insane, \$6,000; support of convict insane, \$8,283.92; National Guard, \$24,999.47; bounty on wild animals, \$11,684.77; Fish Commissioners, \$2,283.78; State-House, \$2,718.34; Board of Agriculture, \$971.10; Industrial School, \$6,000; Board of Equalization, \$622.40; Board of Health, \$995.95; clerk-hire, \$1,270.83; Bank Commissioners, \$4,493.06; education of deaf and dumb, \$4,123.87; education of blind, \$3,300; Normal School, \$5,000; publishing laws in newspapers, \$2,985.80; incidentals, \$5,145.34. Extraordinary expenses—Agricultural College, \$8,000; White Mountain roads, \$2,127.29; State Prison, balance of current expenses, \$1,282.46; historian, \$1,042.20; indexing records, \$1,200; Gen. Grant ob-

sequies, \$1,821.29; publication of military records, \$700; legislative resolves, \$8,889.16; Veterans' Association, \$2,568.11; Gettysburg Memorial Association, \$1,000; State Arsenal, \$2,000; improvement of camp-ground, \$882.41; refunded taxes, etc., \$5,810.92. The \$400,000 State tax is no longer a burden upon the towns, as their credits on account of corporation taxes, more than pay the direct tax in a large number of the towns.

Board of Equalization.—The report of the secretary, for 1886, shows an increase of valuation of property over the previous inventories of \$411,708, and an increase in savings-bank deposits of \$3,572,059. Number of ratable polls, valuation, amount of taxes, etc., by counties:

	Number of polls.	Money.	All other personal.	Real estate.	Total inventory.	Amount of taxes.
Belknap.....	4,914	\$292,169	\$1,034,675	\$5,751,056	\$7,509,300	\$154,722 46
Carroll.....	4,799	201,458	871,211	4,441,441	5,494,005	172,887 98
Cheshire.....	7,680	1,498,512	8,120,357	11,957,766	17,339,635	275,829 62
Coös	5,516	365,660	1,259,919	4,645,189	6,822,363	146,283 09
Grafton.....	9,865	1,102,429	2,456,519	11,848,488	16,393,946	262,901 46
Hillsborough.....	20,110	1,990,730	6,412,714	36,347,516	46,761,760	743,957 14
Merrimack.....	11,963	1,504,375	3,564,375	18,019,348	24,274,566	389,446 60
Rockingham.....	11,827	673,835	4,042,968	17,108,452	23,007,925	423,519 19
Strafford.....	9,525	698,626	8,370,466	14,027,894	18,944,486	274,767 89
Sullivan.....	4,312	406,578	1,836,505	5,909,085	8,083,668	148,688 82
Total.....	90,513	\$8,564,495	\$27,459,699	\$130,056,065	\$175,131,559	\$2,992,024 14
Less tax raised to pay for school-district property, in above.....						321,259 13
Total.....						\$2,670,765 01
Deposits in savings-banks (less amount invested in real estate), \$46,974,722—tax.....						469,747 22
Amount of property taxed and taxes assessed (\$222,106,281).....						\$3,140,512 23

Insurance.—The Insurance Commissioner, in his report to June, 1886, shows that all fire-insurance companies of other States and countries, to the number of fifty-eight, withdrew from doing business in this State Sept. 1, 1885, and that much the larger share of the fire-insurance transactions of the year do not appear in his report; consequently, the statistics appear very meager. He says the New Hampshire State and town mutual companies that have heretofore reported have undergone no material change; that they have been supplemented by four stock companies, with an aggregate capital of \$525,000, twelve State and two town mutual companies, making five stock companies in all, with a total capital of \$1,005,000, and fifteen State and nineteen town mutual companies. The State and town companies reporting were carrying risks in the State, Dec. 31, 1885, as follows: Stock companies, \$15,812,604; State mutuals, \$8,380,893; town mutuals, \$2,261,312; total, \$26,554,909. The Legislature of 1885 passed what was known as the "valued-policy" law, which brought forth vigorous protests from the insurance companies out of the State, followed by the declaration that, "if the said bill became a law, they would immediately withdraw from the State." With slight amendments, the bill passed both houses by more than a two-thirds vote, and received the signature of the Governor; and those companies thereupon ordered

their agents to close business and forward balances to the home offices. The "valued-policy" law simply provides that an insurance company shall be liable, in cases of total loss, to the full amount written in the policy; that in partial loss the company shall pay a sum equal in amount to the damage done; that compacts and combinations for the purpose of fixing rates shall not be formed; and that suits arising from disagreement shall be brought and maintained only in the courts of New Hampshire. The law appears to have been sustained by a great preponderance of sentiment, both of the people and the press. Upon the withdrawal of these insurance companies the people at once took steps to meet the emergency, and a few months sufficed to develop the formation of both stock and mutual companies able to protect the interests of New Hampshire. A large decrease in losses, and of the amount expended for insurance, is already very perceptible. The Commissioner warns the people of the State against "outlaw" or irresponsible companies, from without the State, offering insurance. The last Legislature passed "An act to facilitate the giving of bonds required by law." This permits any judge, head of department, or other officer authorized to accept or approve a bond, to accept the policy bond of a duly licensed company, when satisfied of its ability to respond, in lieu of personal security. In 1885 there were burned in the

State 52 barns, 4 shoe-factories, 5 dry-goods stores, 60 dwellings, 4 grocery-stores, 4 lodging-halls, 11 hotels, 4 livery-stables, 9 saw, shingle, and stave mills, 4 woolen and 2 cotton mills. The city of Concord has, in later years, enjoyed immunity from conflagration in a marked degree by providing an abundance of water at 120 feet head; a full service of hydrants, steam fire-engines, private force-pumps, electric alarm-boxes, etc. The chief engineer reports, for 1886, for the principal fire precinct, extending a mile and a half from the business center, containing 12,000 population and many public buildings, that the fire losses aggregated only \$237.50; insurance received, \$62.50. In the out villages and rural portions of the city's other 60 square miles of territory the total estimated loss was but \$10,337.50. Of this loss, \$5,450 fell on farm-buildings beyond the reach of means for extinguishment. The insurance received was \$6,087.50. Under the foreign insurance companies' rule, the premiums paid amounted to more than \$70,000 annually.

The number of life-policies issued in 1885 was 2,282; amount insured, \$3,349,822; policies in force, Dec. 31, 1885, 7,801; amount insured, \$13,328,130; premiums received in 1885, \$341,965; losses and claims paid, \$308,984. The amount of life-insurance done in the State exceeds that of the previous year in number of policies issued, amount written, and sum of

premiums received. The claims paid also show an increase. The annual tax assessed on insurance companies of other States, April 1, 1886, amounted to \$3,478.81.

Steam-Railways. — The forty-second annual report of the Railroad Commissioners gives the following information: Gross earnings of the steam-railroads, reporting in 1885, passenger department, \$7,954,851.56; freight department, \$8,482,236.98; rents for use of roads, \$1,042,710.12; other sources, \$509,341.44; total amount, \$17,989,140.10. Gross expenses, \$11,692,167.07; gross net income, \$6,296,978.03. Compared with previous reports, a large apparent increase is shown. This is explained by the business of the Eastern and Boston and Lowell systems being included in the returns. The capital stock of the roads expended in New Hampshire is approximated at \$23,000,000. Of thirty-five corporations reporting, twenty-six paid dividends varying from 2 to 10 per cent. Average for all roads reporting, 4.40 per cent. A good financial year for the railroads of the State is reported. No injurious effects have resulted from the consolidation policy adopted three years since.

The following table shows the mileage, cost, and equipment of the railroads in New Hampshire for the year ending Sept. 30, 1885. The taxable valuation in 1886 was \$14,671,882; and the tax assessed \$208,340.62:

NAMES OF ROADS.	Miles in New Hampshire.	Cost of road and equipment.	Tax paid.	To towns.	To State.
Ashuelot.....	23.21	\$234,222 12	\$1,899 10	\$944 65	\$954 45
Atlantic and St. Lawrence.....	52.02	2,960,916 00	6,377 00	1,694 25	4,782 75
Boston, Concord, and Montreal.....	145.88	2,928,850 87	29,050 00	16,122 12	12,927 88
Boston and Maine.....	34.75	3,062,796 87	15,241 97	6,716 25	10,999 12
Cheshire.....	42.81	2,717,553 26	18,098 40	4,857 92	8,240 48
Concord.....	34.53	1,500,000 00	2,021 70	22,158 42	5,863 28
Concord and Claremont.....	56.00	1,129,706 33	6,906 20	1,858 85	5,047 35
Concord and Portsmouth.....	40.50	350,000 00	5,519 50	5,116 93	402 57
Dover and Winnipesaukee.....	29.00	430,000 00	4,266 50	2,300 16	1,966 84
Eastern (in New Hampshire).....	16.08	750,556 56	4,080 88	2,746 22	1,254 66
Fitchburg.....	9.37	425,543 83	378 70	94 67	284 08
Manchester and Lawrence.....	22.39	1,000,000 00	17,887 10	12,081 07	5,356 08
Manchester and North Ware.....	19.00	200,000 00	929 60	282 40	697 20
Monadnock.....	13.76	867,701 26	1,150 80	697 20	453 60
Mount Washington.....	8.33	139,500 00	1,510 60	559 41	951 19
Nashua, Acton, and Boston.....	4.75	1,057,081 20	232 40	68 10	174 30
Nashua and Lowell.....	5.25	909,585 02	4,218 20	1,887 35	2,390 85
Northern.....	69.50	3,068,400 00	23,088 20	10,010 56	18,072 64
Pemigewasset Valley.....	20.50	502,954 75	.....	.....	.....
Peterborough.....	10.50	588,950 00	516 60	218 25	308 85
Peterborough and Hillsborough.....	18.50	209,298 44	.....	.....	.....
Portland and Rochester.....	3.50	588,617 19	290 50	72 98	217 52
Portland and Ogdensburg.....	40.54	4,425,504 92	1,162 00	290 50	571 50
Portsmouth and Dover.....	10.88	768,400 00	1,029 20	971 50	57 70
Portsmouth, Great Falls, and Conway.....	69.94	2,150,800 00	5,135 90	1,444 97	3,690 98
Profile and Franconia Notch.....	13.33	216,017 02	.....	.....	.....
Sullivan.....	25.81	718,188 53	5,810 00	1,452 50	4,367 50
Suncook Valley.....	17.37	845,199 19	1,591 80	1,552 60	39 20
West Amesbury Branch.....	2.32	114,000 00	290 50	72 60	217 88
Whitefield and Jefferson.....	10.65	189,500 89	.....	.....	.....
Wilton.....	15.50	242,600 00	2,905 00	2,812 91	92 09
Wolfeborough.....	12.03	855,500 00	525 00	153 65	871 85
Worcester, Nashua, and Rochester.....	55.02	4,553,921 02	1,948 80	707 70	1,241 10
Manchester and Keene.....	29.59	182,436 00	.....	.....	.....
Total.....	963.32	.....	\$186,980 55	\$99,890 21	\$87,000 34
Branches.....	73.00	.....	.....	.....	.....
Total.....	1,041.32	.....	.....	.....	.....
Double track in New Hampshire.....	66.03	.....	.....	.....	.....
Total.....	1,107.35	.....	.....	.....	.....
Sidings, etc., in New Hampshire.....	197.24	.....	.....	.....	.....
Total.....	1,304.59	.....	.....	.....	.....

The new railway passenger station in Concord is an elegant and spacious structure, 280 feet long by 68 feet wide, with an iron trainshed 770 feet long and 105 feet wide, covering an area of two acres. Its foundation is of Concord granite, the walls dark-red brick, laid with dark joints, granite window-sills, lintels and cappings. Its corners are square pilasters, with dark-red terra-cotta capitals, each surmounted by a copper dome, relieving the façade. The roof has a steep pitch, and is covered with dark-blue slate, and flashings of heavy copper. The principal room is a rotunda, or waiting-room, 60 by 65 feet, open to the roof, and finished in oak panels. The windows and transoms are of stained cathedral glass. The floor is of marble tiling, and light iron stairways lead to a gallery on three sides, conducting to the several offices. A large outline map of New Hampshire, with railway systems and connections, rivers, lakes, and mountains, is painted in fresco on the eastern wall. The general offices are in the second and third stories.

A bronze statue of Daniel Webster was a gift to New Hampshire, Jan. 18, 1886, from Benjamin P. Cheney. The figure is 8 feet high, designed by Thomas Ball, of Florence, Italy, and cast at Munich. Its pedestal is granite, 14 feet high, and it is placed in the State-House Park, Concord. The panels are severally inscribed: "Daniel Webster," "Born Salisbury, N. H., 18 Jan., 1782," "Died Marshfield, Ms., 24 Oct., 1852." "Presented to State of New Hampshire, 18 Jan., 1886." The statue was dedicated with appropriate civic and military exercises, June 17, 1886.

Street Railways.—The following are the statistics of street railways in the State: City of Concord—length of road, 7 miles; track, with sidings, $7\frac{1}{4}$ miles; construction, \$32,165.49; equipment, and land and buildings, \$25,652.19; cash and cash assets, \$3,759.67; total assets, \$61,577.85. Liabilities—capital stock, \$45,000; unfunded debt, \$7,000; surplus, \$9,577.35; \$61,577.85. Total miles run in the year, 91,250; passengers carried, 210,963. Two steam motors are used. City of Manchester—length of track and sidings, $4\frac{1}{2}$ miles; construction, equipment, land, buildings, etc., \$25,000; cash assets, \$841.72; capital stock, \$25,000; surplus, \$841.72; miles run during the year, 135,415; passengers carried, 440,693; round trips, 37,690. City of Dover—construction, \$18,237.44; equipment and cash assets, \$7,473.10; total, \$20,710.54; capital stock, \$19,450; unfunded debt, surplus, and cash assets, \$1,260.54; total, \$20,710.54; length of track, 2.39 miles; miles run during the year, 5,735; passengers carried, 81,811; trips, 1,225. Laconia and Lake Village—construction, \$10,454.29; equipment, land, buildings, and cash assets, \$9,843.17; total, \$20,297.46; capital stock, \$15,000; unfunded debt and surplus, \$5,297.46; total, \$20,297.46; length of track, $2\frac{1}{2}$ miles; miles run during the year, 41,523; passengers carried, 148,133; round trips, 9,720.

Telegraphs and Telephones.—The following is a statement of the telegraph companies within the State, and taxes assessed by the State Board of Equalization for 1885:

COMPANIES.	Valuation.	Tax assessed.	Tax paid.
American	\$8,525 00	\$40 96	\$40 96
Chester and Derry	400 00	4 65	4 65
Direct United States Cable.	10,000 00	116 20	116 20
Maine.....	10,000 00	116 20	116 20
Montreal.....	5,000 00	58 10	58 10
Mutual Union.....	2,000 00	28 24	28 24
Northern.....	5,000 00	58 10	58 10
Western Union*	175,000 00	2,033 50	....
Total.....	\$240,925 00	\$2,450 95	\$417 45

* This corporation has appealed to the Supreme Court for the abatement of tax assessed. A decision has not yet been rendered.

The statistics of the telephone companies in the State, for the year 1885, are as follow:

COMPANIES.	Valuation.	Tax paid.
Brattleboro' and Chesterfield.....	\$700 00	\$8 31
Brattleboro' and Hinsdale.....	500 00	5 18
Colebrook, Stewartstown, and Clarksville.....	250 00	2 91
Colebrook, Stewartstown, and Connecticut Lake	1,500 00	17 48
New England Telephone and Telegraph.....	200,000 00	2,324 00
Plymouth and Hampton	2,400 00	27 89
Stratford and Colebrook	800 00	9 30
Winnipesaukee Bell	5,000 00	58 10
Total.....	\$211,150 00	\$2,453 00

The taxable valuation of telegraphs in 1886 was \$172,142, and the tax levied, \$2,444.40. The taxable valuation of telephones was \$216,600, and the tax levied \$2,552.85.

Savings - Banks.—The Commissioners report the earnings of all the savings-banks for the year ending Dec. 31, 1885, as \$3,029,925.73, or over $6\frac{1}{2}$ per cent. of the deposits, or 6 per cent. of the book value of the assets. The expenses to the same date, aggregate \$144,847.56, or one third of one per cent. The one-per-cent. State tax, believed to be burdensome, and tending to drive deposits from the State, amounts to \$435,828.72. The rate per cent. of dividends is slightly higher than was shown in the preceding report. The Salmon Falls, the only State bank, pays its usual 10 per cent. Thirteen savings-banks divide 5 per cent.; nine, $4\frac{1}{2}$ per cent.; thirty-nine, 4 per cent.; others, $3\frac{1}{2}$, 3, and 2 per cent. The securities in New Hampshire aggregate \$14,369,523.57; in New England, \$16,634,825.40; outside of New England, \$32,161,922.44. Loans secured by mortgage on Western farms, with about \$100,000 in Florida, amount to \$12,113,500.75; Western cities, including personal and collateral securities, \$4,009,074.38. County, city, town, and school district bonds amount to \$7,116,133.10. Railroad bonds have decreased, while railroad and bank stocks have increased. Miscellaneous bonds and stocks show an increase. The following table shows the number, condition, and progress of the savings-banks of New Hampshire in each year from 1850 to 1886, inclusive:

NEW HAMPSHIRE.

YEAR.	No. of banks.	No. of depositors.	Amount of deposits.	Increase or decrease in amount of deposits over previous year.	Average to each depositor.	Average to each person in the State.	Population (about).
1850.....	12	18,081	\$1,641,543 71	Inc. \$76,972 76	\$125 97	\$5 16	318,000
1851.....	18	14,816	1,776,668 00	" 185,254 29	124 11	5 58	318,000
1852.....	15	15,771	2,009,619 42	" 232,849 42	127 42	6 82	318,000
1853.....	16	18,105	2,507,909 61	" 498,292 19	138 52	7 89	318,000
1854.....	16	20,154	3,822,261 52	" 714,351 91	159 95	10 18	318,000
1855.....	17	21,300	3,841,256 81	" 118,995 29	156 86	10 51	318,000
1856.....	19	23,459	8,587,383 81	" 196,106 50	150 59	11 12	318,000
1857.....	20	27,786	3,748,285 63	" 210,922 32	151 62	11 79	318,000
1858.....	21	23,463	8,588,685 23	Dec. 159,627 49	152 94	11 29	318,000
1859.....	23	26,762	4,188,822 40	Inc. 550,164 17	154 65	13 01	318,000
1860.....	26	30,828	4,860,024 86	" 721,202 46	157 65	14 90	326,000
1861.....	26	35,590	5,590,632 18	" 730,627 32	157 08	17 14	326,000
1862.....	27	35,920	5,688,585 46	" 62,988 28	157 39	17 34	326,000
1863.....	27	39,358	6,500,308 07	" 906,722 61	166 63	20 12	326,000
1864.....	25	48,175	7,661,738 46	" 1,161,430 39	177 45	25 50	326,000
1865.....	29	49,572	7,831,385 72	" 169,596 26	179 83	24 02	326,000
1866.....	29	42,594	7,857,601 01	" 26,265 81	183 18	24 47	321,000
1867.....	28	47,722	10,468,418 50	" 2,605,817 47	218 77	32 56	321,600
1868.....	31	55,218	13,541,584 96	" 3,078,116 46	245 12	42 18	321,000
1869.....	38	62,931	16,379,867 09	" 2,838,383 18	260 28	51 02	321,000
1870.....	45	70,918	18,759,461 05	" 2,379,593 96	264 52	59 00	318,000
1871.....	52	77,471	21,472,120 07	" 2,712,659 02	277 16	67 52	318,000
1872.....	54	86,790	24,700,774 47	" 3,228,653 37	294 46	77 06	318,000
1873.....	61	94,967	29,671,114 88	Dec. 4,970,340 41	312 45	98 21	318,000
1874.....	64	92,788	28,829,376 83	841,737 35	310 70	90 65	318,000
1875.....	65	96,938	30,214,555 71	Inc. 1,983,108 88	327 37	93 00	325,000
1876.....	65	100,191	31,198,064 16	" 988,478 45	326 01	100 07	325,000
1877.....	67	97,683	32,388,816 55	" 1,140,812 39	327 70	99 50	325,000
1878.....	66	94,967	28,793,947 48	Dec. 1,256,267 10	308 19	91 36	325,000
1879.....	66	87,279	26,282,186 09	" 1,991,501 20	308 18	80 57	325,000
1880.....	67	89,934	23,204,791 70	Inc. 1,922,655 61	813 61	86 73	325,000
1881.....	64	96,881	32,097,784 17	" 3,833,126 76	831 81	92 91	347,000
1882.....	65	104,482	36,181,186 70	" 4,312,860 10	855 37	103 00	350,000
1883.....	66	113,167	39,124,814 68	" 2,943,127 98	845 81	111 73	350,000
1884.....	67	117,317	42,091,596 55	" 2,966,751 87	858 78	120 20	350,000
1885.....	68	121,216	43,827,356 45	" 1,735,789 86	861 25	125 29	350,000
1886.....	67	125,273	46,631,918 72	" 2,804,567 81	872 25	181 35	355,000

Education.—The Superintendent of Instruction reports that 1,363 more pupils were enrolled in 1885 than in the year previous. Towns in the State having organized schools, 235; the number of districts, 1,890; fractional districts, and under special acts, 255. Different public schools, 2,770; graded schools, 526; town and district high-schools, 57; average length of schools in weeks, 20-37. Boys attending school two weeks or more, 32,870; girls, 31,349; number of pupils under six years, 4,632; between six and sixteen, 53,239; over sixteen, 5,221. Average attendance of all the pupils, 44,769; average to each school, 16-16; ratio of average attendance to the whole number, .711. Number reported attending private schools, not registered in the public schools, 5,832; number between five and fifteen not attending any school, 3,570. Teachers—males, 404; females, 3,076; average wages of male teachers per month, including board, \$40.22; of female teachers, \$23.56. Teachers from normal schools, 365. School-houses—number, 2,190; unfit for use, 281; built during the year, 12; having maps or globes, 1,684. Estimated value of buildings, sites, and furniture, \$2,265,262; value of apparatus, \$49,583. Revenue—town taxes, \$470,177; district taxes, \$75,721; literary fund from the State, \$43,304; local funds, \$10,717; railroad-tax, \$5,200; dog-tax, \$5,119; contributed in board, fuel, and money, \$7,234; entire revenue, \$617,472. Expenditures—new buildings, \$27,384; interest, or to cancel debt, \$14,541; perma-

nent repairs, \$36,583; ordinary repairs, fuel, care, etc., \$65,098; teachers' salaries, \$454,374; superintendence, \$17,964; total expended, \$615,943. Average cost per pupil for miscellaneous expenses and salaries of teachers, \$8.08; average cost of the attendance, \$11.57; average cost for entire sum expended, \$9.29. Teachers' institutes, organized under the law of 1883, have been held in each of the ten counties, with marked increase and interest, at an expense of \$1,663. The attendance of teachers was 1,047. The cities and towns that have adopted the system of furnishing free text-books for the use of pupils, find the plan working acceptably. There is, doubtless, a saving of 50 per cent. over the private cost of books. The great work of the year has centered in the new school law, authorized in 1885, known as the town system of schools—a substitute for the old district system. Results, as to its success, have not yet been reached, as the law was not to go into effect until March 1, 1886. There were in the State forty-four town high-schools, employing forty-six male teachers and seventy-nine female teachers, having 1,493 male students and 2,009 female students—2,112 pursuing the higher branches, 1,016 the ancient languages, and 554 the modern languages. These schools have libraries containing 6,019 volumes. The value of the buildings, apparatus, and grounds, is \$816,550. Beyond these, there are forty-three schools (private) of a still higher grade, fitting young men and women for courses of college study, having ninety-three male and sixty-one

female teachers, with 1,999 male and 1,279 female students. The value of these buildings, apparatus, and grounds, is \$853,800. In these are 2,550 students of New Hampshire; pursuing the higher branches of study, 2,192; the ancient languages, 887; modern languages, 591. Volumes in these libraries, 26,456. The high-schools in all the cities and principal towns fit students for the colleges.

Board of Health.—The Secretary of the State Board of Health reports to April 30, 1886, treating upon typhoid fever, scarlet fever, diphtheria, small-pox, and cholera; also upon the sanitary and hygienic condition of school-houses, places of public resort, summer-hotels, and railway-stations. The last Legislature enacted some laws tending to secure a better sanitary administration than heretofore. It invested the State Board of Health with increased powers, so that it is now able to handle promptly any complaint that may be presented, if applicable to the public health, in a more satisfactory manner than formerly. The laws of last session bearing upon this subject are as follow: An act to render more efficient the health laws of the State; regulating the sale of veal; to regulate the sale and inspection of milk; to prohibit the use of barbed-wire fences in certain cases; to prohibit the sale of cigarettes, or tobacco in any of its forms, to minors; relating to the sale of imitation butter; to simplify the process for protecting certain water rights and the rights of riparian proprietors; relating to the penalty in certain cases of nuisance; the better protection of life and property; resolution establishing an epidemic fund.

Fish and Game.—The effort to restock the lakes, ponds, and rivers of New Hampshire with fish, and the forests with game, some years since, seems to have attained excellent success. Fish-hatching houses, established at Plymouth and at Sunapee Lake, are reported to be very successful. In 1885 there were hatched and distributed to various waters of the State, from the Plymouth station, 500,000 eggs of the Penobscot salmon; 273,000 brook-trout, 2,000,000 white-fish, 175,000 landlocked salmon, and 20,000 Lake Superior trout. In 1876, 1,725,000 of these varieties of fish were for distribution from the State hatcheries. The large number of young fish planted in the inland waters of the State, it is presumed, will result in a great increase of mature fish very soon. Lamprey-eels have ascended the Merrimack river above the Amoskeag fishway at Manchester. A law for the protection of all varieties of fish is in force. Shad-fry have been placed in the Merrimack River below Hooksett. Penobscot salmon-eggs have been placed in the upper Merrimack waters; 600,000 white-fish eggs in Lake Winnipesaukee; landlocked salmon in Squam, Sunapee, and Newfound Lakes, since 1878. The mature fish are reported to be quite plentiful. Some have been taken weighing from six to twenty pounds.

Thirty thousand Lock Leven trout-eggs have been received from Scotland, for Sunapee Lake. Newfound Lake, near Bristol, is said to afford the finest fishing in New England. A new spawning-bed has been discovered in Lake Sunapee, and an entirely new species of trout, weighing from two to ten pounds. They are found only in extremely deep water. Dr. Bean, Curator of the National Museum, Washington, D. C., pronounces this to be a gigantic type of the *Oquossia* species; that no other specimens of the size have been known to exist south of Labrador, and in a few lakes north of St. Lawrence river. A law enacted in 1885, prohibiting the exportation of game from the State, has been of value in preventing game from being snared for the benefit of city game-dealers. By a more stringent enforcement of the law, deer are increasing in the northerly and easterly parts of the State. Arrests and convictions have been made, by the commission, for snaring partridges, killing deer, and catching fish in the closed season, and for the possession of short lobsters.

Asylum for the Insane.—The forty-fourth annual report, giving statistics to March 31, 1886, states the number of patients of that date as 322—137 men and 185 women. The number admitted during the year was 138—78 men and 60 women; making the whole number during the year 460—215 men and 245 women. Those discharged in the year were 109, of whom 62 were men and 47 women. Thirty-four persons have died—16 men and 18 women. The daily average of the year has been 322—the highest average in the asylum's history. Of this number 139 were males and 182 females. New diversions have been introduced, namely, that styled "camping-out parties," for men, under the charge of a supervisor—one party having spent a week at York Beach, Maine. Daily camping parties are a less expensive but very desirable way of accomplishing the same purpose. Another is the introduction of a cheerful workshop. The farm has been source of income to the institution. Its products appear to the value of \$8,305.57, largely the product of milk, which entirely supplies the needs of the asylum. The receipts of the asylum for the year were \$88,668; the disbursements, \$85,124. The number in the asylum, supported by counties, was 41; by towns and cities, 24; by the State, 13. The greater part of the inmates are now private, sustained by friends, or from their own resources. The great mass of the insane of the State supported at public expense are to be found at the county almshouses; the exact number can not be stated with accuracy, but it exceeds the whole number at present in the asylum—probably 600.

Charities.—New Hampshire pays for the education of its deaf, dumb, and blind, in institutions out of the State—for its deaf and dumb, \$4,123.87; for its blind, \$3,300; idiotic and feeble-minded youth, \$168.75; Granite State

Deaf-Mute Mission, \$150; support of indigent insane, \$6,000; Asylum Library, \$100; convict insane, \$3,233.92; Industrial School, \$6,000; Prisoners' Aid Association, \$14.25.

Industrial School.—The number in the school on April 1, 1885, was 108; number during the year, 146; discharged on expiration of sentence, 18; on probation, 9; honorably discharged, 7; number in school in April, 1886, 112. Average time of detention of those discharged, two and a half years. Nationality of inmates: American, 67; Irish, 45; French, 24; Scotch, 3; German, 3; English, 1; negro, 2; Indian, 1. The inmates are taught reading, writing, arithmetic, geography, history, and natural history. Good health has generally attended them during the year. The boys learn farm-work, chair-seating, carpenter and hosiery work, making coarse shoes, and house-painting. The girls do housework, finish the hosiery, and mend and make their clothing. The farm produces bountifully.

State Prison.—The whole number of convicts on May 1, 1885, was 127; committed during the year, 56; whole number during the year, 183; number died, pardoned, and discharged, during the year, 51; the number remaining May 1, 1886, 132. The earnings of the prison, for the year, amounted to \$17,652.95; expenses, \$20,299.68; balance against the prison, \$2,646.73; the cost of each inmate was 45 cents a day; the daily average cost of each inmate, after deducting earnings, was 60 cent.

Military.—The New Hampshire National Guard, as organized in 1876, consists of a brigade of three regiments of infantry of eight companies each, one four-gun battery, and one company of cavalry, under the command of Brigadier-General Daniel M. White. The strength of the brigade is 112 commissioned officers and 1,097 enlisted men; total, 1,209, well uniformed and equipped. The brigade holds an annual encampment, in Concord, five days, and is well disciplined and drilled. The encampment-grounds consist of forty acres, in excellent condition for such purposes, within a mile and half of the State-House. On these grounds is located the State Arsenal, a fire-proof brick building, forty by eighty feet.

Population.—The increase of inhabitants appears chiefly in the cities and manufacturing towns, and in the northern portion of the State, induced by the summer travel thereto, and extensive lumbering business; and also by the manufacturing of wooden-wares and wood-pulp. Fine water-powers are close at hand, and steam-power is generated from the refuse wood and timber. In the exclusively agricultural towns, especially those remote from the markets, and away from the railroads and water-ways, population is on the decrease. A class of the foreign population, however, are buying these cheapened lands, and are thriving by their cultivation.

Boundary.—In 1885 the Legislature authorized the appointment of a commission to investi-

tigate the true boundary between New Hampshire and Massachusetts, long in dispute; Massachusetts appointed a similar commission, and the two commissions entered upon the work of survey and investigation, with their engineers, and went over a part of the ground the past season, marking the line by suitable bounds along the course of Merrimack river. After several attempts at adjustment, New Hampshire appealed, in 1735, to the King, George II, and in 1740 obtained a favorable decision: That the boundary-line should follow the Merrimack, three miles north from the right bank, to Pawtucket Falls near Lowell, thence in a due-west line to New York State. In acceding to the decree of the King, Jonathan Belcher, Governor of Massachusetts, ordered his surveyor to allow ten degrees for the variation of the needle, which should have been about eight degrees. This variation from the due-west line took from New Hampshire 59,872 acres, equivalent to three townships of about 20,000 acres. The same fault applied to the "New Hampshire Grants," now Vermont, only that the triangle increased in width as it proceeded westward. This boundary-line is still in controversy; but its equitable adjustment is hoped for. A triangulation of the State has been carried on by the assistance of the U. S. Coast and Geodetic Survey.

Minerals.—Besides the unlimited supply of granite, quarried at Concord and many other places, soapstone is largely quarried at Francestown and wrought into stoves and a variety of other uses at extensive works in Nashua. Mica is found abundantly in the coarse granite veins of Grafton, Groton, and other towns, and has been quarried with great success, even in plates a yard square. The Ruggles Mica Company, of Grafton, has been notable in its production; at the Palermo mine, North Groton, a quantity amounting to 4,400 pounds was recently taken out.

Precious Metals.—The existence of gold was discovered in the valley of the Connecticut river at Plainfield in 1854, and subsequently traces of it were mined in Lebanon, Hanover, Lyman, and Lisbon. It was found in galena, clay slate, and in quartz-veins in Lisbon. Gold and silver have been mined with some success, in Lisbon, from the quartz. In the census year, from these mines, the gold product was 532 ounces, valued at \$11,000; silver, 12,375 ounces, valued at \$16,000; total value, \$27,000. Richer quartz-veins have recently been opened in the Lisbon mines. In the brooks on the western slope of Moosilauke mountain, gold has been washed from deposits of sand. Placer-mining is said to be meeting with success in Warren. Copper is mined at Monroe and Lyman.

Business Affairs.—The total number of business failures reported in 1886 was 75, against 86 in 1885. The liabilities in 1886 were \$411,000; in 1885, \$1,293,000. The actual assets, in 1886, were \$181,000; in 1885, \$559,000.

NEW JERSEY. State Government.—The following were the State officers during the year: Governor, Leon Abbott, Democrat; Secretary of State, Henry C. Kelsey; Treasurer, J. J. Toffey; Comptroller, Edward J. Anderson; Attorney-General, John P. Stockton; Superintendent of Public Instruction, Edwin O. Chapman. Supreme Court: Chief-Judge, Mercer Beasley; Associate Justices, Alfred Reed, Joel Parker, Edward W. Scudder, Bennet Van Syckel, David A. Depue, Jonathan Dixon, M. M. Knapp, and William J. Magie. Chancellor, Theodore Runyon.

Legislative Session.—The Legislature met on January 12, and on April 16 adjourned to June 1. Upon reassembling, it remained in session until June 3, and then adjourned *sine die*. The recess was taken to await the action of the Court of Errors on the railroad-tax cases, the Supreme Court having held the tax law of 1884 unconstitutional. The Court of Errors reversed this decision, and thus rendered new legislation unnecessary. The Senate was occupied for some time with the impeachment trial of Patrick H. Laverty, State-Prison keeper, charged with improper conduct with female convicts. On April 22 he was found guilty, removed from office, and disqualified from holding any office of honor, profit, or trust under the State. Among the acts of the session were the following:

An oleomargarine act.

For the partition of lands held by copartners, etc. Relative to assessments for public improvements in towns and villages.

Increasing the limit of the annual appropriations for current expenses for public schools in incorporated cities.

Providing for the annual election of city clerks in certain cities.

Making it lawful to impose but one poll-tax.

Requiring railroad companies to give bond on appealing cases from commissioners.

Regulating the compensation of prosecutors in first-class counties.

Giving recorders and police justices exclusive control of all complaints under the vice and immorality act.

Authorizing the State Charities Association to visit jails and other public institutions.

Making certified copy of any certificate of insurance company's organization evidence in court.

Granting the Legislature's consent to the leasing of the New Jersey Junction Railroad to the Central and Hudson Railroad.

Relative to the publication of the financial statements of counties.

Authorizing the Governor to appoint two assistant inspector-generals of rifle practice, with the rank of colonel.

Extending the Chancellor's power over the property of minors.

Empowering benevolent and charitable associations to pay death-benefits, etc.

Authorizing railroad companies leasing their stock and franchises to issue bonds secured by mortgage.

For the investigation of the Morris and Essex Railroad's alleged fraudulent tax returns.

Giving the Governor, Comptroller, and Treasurer power to pledge the State securities to provide moneys for the use of the school fund whenever a majority of them decided it necessary.

Prohibiting persons not residents of the State for six months from planting oysters in Raritan Bay for

private use under a penalty of \$500 fine or a year's imprisonment.

Appropriating \$225,000 to rebuild the State-House.

Enabling the Lunacy Committee of the Board of Freeholders to employ physicians and nurses outside the State.

Empowering Boards of Freeholders in counties having no hospital to appropriate \$1,000 annually for the support and maintenance of county patients in private hospitals.

Providing daily compensation for officers and men of the National Guard while in camp.

Permitting cities to vote on the question of giving the mayor a two-year term, making him President of the Board of Aldermen, etc.

Providing that where a foreign will directs the sale of land in this State, it shall have the same effect as if filed originally in this State.

Prohibiting the erection or maintenance, within one thousand feet of railroad or public road, of any storehouse, factory, etc., for gunpowder, dynamite, or other explosive; the penalty is a fine of \$1,000.

Empowering the Governor to retire commissioned officers of the National Guard after fifteen years' service, if they so desire.

Concerning the removal of trust property out of the State.

Amending an act concerning the drainage of lands.

Conferring title to oyster-beds not cultivated by such person or persons as take possession thereof and cultivate.

Taxing the real and personal estate of every manufacturing corporation the same as real and personal estate of individuals.

Regulating the term of residence in the State before one can apply for divorce.

Facilitating the foreclosure of mortgages made by consolidated railroad companies of roads lying partly within and partly without the State.

Regulating the proceedings in cases of assignment for the benefit of creditors.

Regulating the season for shooting European pheasants and other birds of foreign origin.

To prevent non-residents of the State from taking oysters out of the waters of New Jersey.

Authorizing street railway companies to increase their capital stock.

Providing for the government of orphan asylums by a board of managers of not less than five nor more than twenty-five persons.

Corporate Taxation.—On this subject the Governor, in his message to the Legislature of 1887, says: "The act of April 10, 1884, under which the tax upon railroad and canal property is now levied, has been declared to be constitutional by the Court of Errors and Appeals after a two years' struggle, during which the litigating corporations have exhausted every legal resource to nullify the act of the Legislature, and the practical work of the State Board of Assessors, in determining the value of their property subject to taxation. The State has been successful, and the Supreme Court has, in its recent division, sustained the work of the State Board, except as to a very small percentage of the total tax. With the exception of the ruling of the court as to franchise-tax upon non-dividend-paying corporations, it would be wise to subject its adverse rulings to the criticism of the appellate tribunal. The property of individuals is free from the imposition of a direct State tax for governmental purposes, and can ever remain so, under an economical administration of public affairs."

"The revenue of the State, from railroad and canal taxes, under the legislation prior to the act of April 10, 1884, amounted in 1884 to \$717,562.30. Under the last-named act the revenue from these sources, assessed in the year 1886, according to the return of the State Board of Assessors, amounts to \$964,901.75. Under the act of April 18, 1884, taxing certain miscellaneous corporations, the State Board assessed the sum of \$244,035.31. Of this amount it will not be possible, however, to collect as large a sum as the previous year, when the State received \$158,276.22. It is safe to assume that the State will collect, of the taxes assessed under both these acts in 1886, over \$1,075,000; an increase of State revenue from corporations in 1886 over 1884 of more than \$357,000. Not only has the State received this direct benefit, but taxes have been levied upon certain real estate of railroad and canal companies, under the act of April 10, 1884, for local purposes, for the years 1884, 1885, and 1886, amounting to \$1,061,627.86. The entire local tax for 1886, and the uncollected taxes for local purposes for 1884 and 1885, will, under recent decisions, be speedily collected and paid to the localities, subject only to the modifications required to conform the action of the State Board to the ruling of the Supreme Court, or to such further modifications as may be required after an appeal to the Court of Errors and Appeals. The State has secured, during the past few years, results that are of great advantage to the people, but it has not yet obtained the full measure of equal taxation. The act of April 10, 1884, contains a limitation upon the taxation of railroad and canal property for local purposes, which excludes the 'main stem' of railroads, the 'water-way' of canals, and the tangible personal property and franchises of these corporations, from any tax for local purposes, and also limits the rate, on the property remaining subject to local taxation, to one per cent. If these exemptions and the limitation as to the rate of taxation for local purposes were stricken from the act, these companies would substantially pay the same tax as individuals."

Under the act of April 10, 1884, the State Board of Assessors taxed 97 railroad and canal companies for the year 1886—for State purposes, the sum of \$964,901.75, and for local purposes, \$372,364.18, making a total of \$1,337,265.93, dividing it as follows:

COMPANIES.	Total State tax.	Total local tax	Grand total.
Pennsylvania Railroad system.....	\$297,952.88	\$96,572.89	\$304,524.77
Reading Railroad system.....	237,678.96	84,242.55	321,921.51
Erie Railroad system.....	61,877.04	18,408.56	104,785.60
Delaware, Lackawanna, & Western system.....	194,583.63	70,079.70	264,617.73
Unclassified.....	173,855.34	78,060.95	251,416.82
Total	\$964,901.75	\$372,364.18	\$1,337,265.93

The total valuation of the property upon which this tax was assessed is \$192,980,843.28, being an increase over the valuation of 1885 of \$3,283,691.33. The total increase of tax for the year 1886 over 1885 is \$21,001.29, of which \$16,418.80 is assessed for State purposes and \$4,582.49 for local purposes.

The mileage of the railroads in the State is reported as follows: Length of line, 1,932 miles; of this amount 517 is double track and 127 is siding, making a total mileage of 3,478. The total length of the canals and feeders is reported to be 176 miles.

A most important question, outside of the general railroad-tax act of 1884, and one now under investigation, is the claim of the State for taxes against the Morris and Essex Railroad Company, or its lessee the Delaware, Lackawanna and Western Railroad Company. The State, among other claims, contends that the returns made annually since the lease of the Morris and Essex Railroad Company to the Delaware, Lackawanna, and Western Railroad Company, are incorrect, and do not truly state the amount of property of the Morris and Essex Railroad Company liable to taxation. The State claims that these companies are indebted to it in a large sum, the amount of which will depend upon the decision of the courts, when the exact facts are ascertained in the pending investigation, or in the suit hereafter to be brought under the act of June 10, 1886.

The original act of incorporation of the Morris and Essex Railroad Company of Jan. 29, 1835, provided that as soon as the net proceeds of said railroad amounted to 7 per cent. on its costs, the corporation should pay to the Treasurer of the State a tax of one half of 1 per cent. on the cost of said road, to be paid annually thereafter on the first Monday of January of each year; provided, that no other tax or impost should be levied or assessed upon the corporation. Under the act of 1835, the road never paid any tax until after the passage of the supplement to its charter, approved March 23, 1865, authorizing the building of certain branch roads therein described, and providing that the tax of one half of 1 per cent., provided for by the charter of 1835, should be paid by the company to the State "at the expiration of one year from the time when the road of the said company shall be opened and in use to Phillipsburg, and annually thereafter; which tax shall be in lieu and satisfaction of all other taxation or imposition whatsoever by or under the authority of this State or any law thereof."

The company's annual statement to the Legislature was prepared under its own construction of the terms of its alleged contract as to taxation. These returns have never been investigated by the State; nor has the company's contention as to the scope of its alleged contract been passed upon by the courts. Under its construction of the alleged contract, the company claims immunity from taxation upon its equipment, asserting that such investment

is not properly chargeable as "cost of road," liable to taxation.

The act of June 10, 1886, provides for an investigation by the State Board of Assessors, as to the correctness of the returns theretofore made by any railroad company, and for the prosecution of a suit by the Attorney-General for the collection of the amount lawfully due the State, in any case where it appeared that taxes had been withheld under incorrect returns.

This investigation is in progress. The Court of Errors has recently held that the limitation on taxation in the charter to one half of 1 per cent. on the cost is a contract, and can not be violated by the State.

Finances.—The reports of the Comptroller and Treasurer present the financial condition of the State for the year ending Oct. 31, 1886. During that year the "State fund" received, from sources other than loans and balances on hand, the following sums:

Tax on railroad corporations	\$778,299 80
Tax on miscellaneous corporations.....	147,415 46
State-Prison receipts	62,072 91
Dividends	28,870 00
Judicial fees	16,606 27
Official fees	14,801 82
All other sources.....	4,946 16

Total..... \$1,063,000 51

The disbursements for the same period, for State account, other than the payment of loans, were as follow:

Account of public debt	\$90,000 00
Charitable and reformatory institutions.....	262,811 68
Courts, State Prison, crimes, etc.....	389,218 75
State government, including Legislature	235,016 18
Military	109,042 06
Printing, binding, etc	84,550 57
Educational	88,294 26
Scientific, sanitary, etc	68,048 99
Miscellaneous.....	42,080 07

Total..... \$1,258,862 49

The balance to the credit of State account Oct. 31, 1886, was \$125,404.48. At the same date there were due from railroad corporations for taxes for State purposes under the act of April 10, 1884, as follows:

Of the tax assessed on the valuations of 1884, and payable in 1885.....	\$156,522 25
Of the tax assessed on the valuations of 1885, and payable in 1886.....	207,056 48

Total..... \$363,578 63

Since Oct. 31, 1886, \$17,101.06 of the above-named sum has been paid. There is also due to the State, from miscellaneous corporations, for taxes under the act of April 18, 1884, the sum of \$817,426.43, of which amount, however, not more than \$20,000 is certainly collectable.

The Comptroller's estimates for the year ending Oct. 31, 1887, show that during that year the State should receive from all sources \$1,600,350.43, which, with the balance on hand Oct. 31, 1886, will amount to \$1,725,754.91. The estimated expenditures during the year, in the absence of any unusual legislative appropriations, will be about \$1,720,000.

"There are appropriations," says the Gov-

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ernor, "which the Legislature this year will in all probability consider it necessary to make, and which in my judgment ought to be made, that will call for additional revenues for State purposes. The Legislature must either refuse to make the extra appropriations for the Soldiers' Home, the State-Prison extension and other matters, or it must provide the means to pay therefor. If the Legislature determines to appropriate the money, it must be raised either by a direct State tax or by some other mode. I am opposed to any expenditure that requires the imposition of a direct State tax, and no such action is necessary at this time. The present and like difficulties can be met by an act which will authorize the taking by the State from the taxes assessed for local purposes in any year a sum sufficient to meet any deficiency caused by State appropriations, which the other sources of revenue are inadequate to meet."

The sinking-fund was established to extinguish the war debt of the State. During the year the commissioners paid off \$97,000 and canceled \$3,000 of the bonds held by them, thus extinguishing \$100,000 of the principal of the debt. Interest was paid on registered and coupon bonds to the amount of \$91,821. The commissioners received for interest \$21,832.02, making the excess of interest paid, over that received, \$69,988.98. The loss on the sale of real estate during the year, over the cost of the same, was \$23,702.48. The cash balance in the hands of the commissioners was increased \$43,426.36 over the balance of the previous year. In 1887, \$100,000 of the principal of the debt falls due and will be paid, but the commissioners have already canceled bonds to the extent of \$5,000, which leaves only \$95,000 of principal to be paid by them.

The bonds outstanding amount to \$1,491,300. The net decrease in this fund during the year was \$101,352.57. The fund amounted at the commencement of the present fiscal year to \$802,275.47.

Educational.—The compulsory education act of 1885 is not carried out in the cities, owing to lack of school accommodations. Between the ages of seven and twelve there are over 88,000 children that did not attend any school during the year, and over 34,000 that attended school less than twenty weeks. According to the last school census, there were 363,478 children between the school ages of five and eighteen years. Of this number, there were enrolled in the schools in 1886, 222,279. The schools will properly accommodate only 200,309. The State Superintendent of Public Instruction is of the opinion that the school accommodations should provide for 70 per cent. of the school census, in order to meet the school wants of the State. There are nine counties and twenty-one cities and towns that fall below this percentage. "I annex statements in detail of the foregoing matters, together with other information, showing," says the Governor-

or, "that the provisions of the Constitution, and the laws passed thereunder, are not obeyed, and can not be obeyed, unless there is further legislation to compel localities to act. The Legislature must provide means for defaulting localities to borrow money to build more school-houses, where it is practically impossible, or unwise, to burden the local tax levy with the amount necessary to give ample school accommodations."

The school fund amounts to \$3,676,017.22, and consists of \$1,095,714.45 of riparian leases and \$2,580,302.77 of United States bonds, mortgages, cash balances, and other securities. Its income during the year was \$196,862.26, being an increase over the previous year of \$6,234.15.

The sum of \$2,678,185.17 was expended by the State and localities for public schools during the year. This is an increase of 249,169.56 over the amount expended the previous year for the same purpose. The total amount of city and district taxes, for the building and repairing of school-houses, was \$628,893.57; which amount is \$60,504.89 in excess of the previous year. The school property of the State is valued at \$7,263,039, being an increase over the valuation of 1885 of \$438,113. The school census shows a decrease for the year of 2,161 children between five and eighteen years of age over the census of the previous year, but there were 424 more children in attendance at the schools. The number of male teachers is 826, and female teachers, 3,069. The male teachers received an average monthly salary of \$63.99, and the female teachers \$36.04.

At the Normal School during the year ending June 30, 1886, 245 pupils were in attendance, the average attendance being 196 $\frac{1}{2}$. Forty-four pupils graduated and are engaged in teaching. Many of the pupils in attendance are unable to remain a sufficient time to graduate, but are holding positions as teachers.

The number of pupils enrolled in the Model School during the year was 491, with an average attendance of 394 $\frac{1}{2}$. Ten pupils graduated.

The amount expended for the schools during the year was \$33,338.91. The State annually appropriates for maintenance \$15,000, and \$5,000 for scholarships and other purposes. There was received from scholars for tuition, \$16,669.80.

School for Deaf-mutes.—The average number of pupils in this school during the year was 100, of whom 56 were males and 44 females. The expenditure for maintenance and other expenses was \$24,293.58, and for repairs, alterations to buildings, and construction of sewers, \$5,967.38, a total of \$30,260.96. There was appropriated \$10,000 for needed repairs to the building, the purchase of school apparatus, and the construction of a main sewer.

Blind and Feeble-minded Children.—The blind and feeble-minded children of the State are supported and instructed in institutions in other States. During the year there were 91 feeble-minded and 38 blind children so support-

ed at an expense to the State for the former of \$23,983.70, and for the latter of \$8,310.56.

Reform School for Boys.—There were 435 inmates in the institution during the year ending Oct. 31, 1886. The number remaining at the end of the year was 288, an increase of 19 over the previous year. The amount of money received from the State for maintenance was \$39,303.62, and from the sale of the products from the farm and the labor of the inmates \$7,814.83, making the total receipts \$47,118.45. The total expenditures, including the amount spent for improvements, was \$45,556.19.

Industrial School for Girls.—This institution had at the close of the year 37 inmates, an increase of six over the previous year. The average age of the pupils is fourteen years. The cost for the maintenance of the institution for the year was \$6,429.73, of which amount the State paid \$5,500. There was received from farm sales \$155.40, and from the work of the pupils \$199.70. The real and personal estate connected with the school is appraised at \$48,707.50. The trustees recommend additional legislation, so that girls may be committed to the institution until they reach twenty-one years of age instead of the present limitation of eighteen years. They ask for an appropriation of \$6,000 for maintenance and repairs.

Insane Asylums.—There were 857 inmates in the institution at Morristown at the close of the fiscal year, an increase over the same period the year previous of 31. Of the inmates 415 were males and 442 females, and the private patients numbered 145. The total cost for the maintenance of the institution during the year was \$253,958.42, being an increase over the expenditure of the previous year of \$50,186.48. There was a balance in the hands of the managers at the close of the year of \$22,517.02. The balance last year was \$20,805.31. The private patients paid \$60,419.47. The annual inventory of the personal property shows a valuation of \$121,777.59, an increase of \$4,845.34 over 1885.

The number of patients in the institution at Trenton at the close of the fiscal year was 691, of which number 342 were males and 349 were females. This is an increase of 45 inmates over the previous year. There were 88 private patients Oct. 31, 1886. The private patients paid during the year \$25,568.80. The cost for the maintenance of the institution for the year was \$155,612.01, being an increase over the previous year of \$157.51. The cash balance in the hands of the managers at the close of the fiscal year was \$22,193.01. The balance for the previous year was \$24,866.45. The annual inventory and appraisement of personal property was \$131,925.93, an increase over the previous year of \$13,554.

Home for Disabled Soldiers.—This institution at the close of the year had 302 inmates, and during the same period 617 were cared for, of which number 487 served the Government in New Jersey regiments. Fourteen thousand and

eighty beneficiaries have been cared for since the opening of the Home. The cost of maintenance for the year was \$32,514.53.

The Legislature in 1886 appointed a commission to select or purchase land and purchase or erect suitable buildings as a home for disabled soldiers and sailors, and appropriated \$60,000 therefor. The commission was directed after the completion of the Home to turn it over to the managers of the New Jersey Home for Disabled Soldiers. The commission has drawn \$13,000 of the appropriation from the treasury, and has used \$12,000 thereof for the purchase of land. The land purchased is on the east bank of Passaic river, one mile north of Newark. The commission describe it as "an elegant plateau with a gradual descent to the bank of the river." Plans have been adopted which will be submitted to the Legislature for a series of buildings capable of accommodating over 300 inmates. The estimates for the erection of these buildings and the laundry, offices, and dining-hall, including cost of land, call for an expenditure of \$115,000, and as the same will require to be furnished, the commissioners ask for an additional appropriation of \$65,000. They urge immediate action, as the lease of the present Home expires May 1, 1887.

Vital Statistics.—The vital statistics for the year ending July 1, 1886, show 12,351 marriages, 25,497 births, and 22,734 deaths.

National Guard.—The strength of the National Guard, as shown at the last annual muster and inspection, is 294 commissioned officers and 8,441 enlisted men, a total of 3,735. This is an increase over the strength reported last year of 10 officers and 188 enlisted men.

Pilot Commissioners.—Fifty-six Sandy Hook and three Perth Amboy pilots are licensed by the State. The service contains eight boats, the largest measuring 71'85 tons, and the smallest 44'28 tons; 1,342 steamers and vessels were piloted inward, and 1,117 outward during the year. The Board of Commissioners direct attention to the fact that during the last three years ten pilots have died, and that no additions to the corps of deputy-pilots have been made during that period. There have been no apprentices in the service since 1883, as no requests have been made by the pilots for the indenture of apprentices. The board states that if such decrease continues at the same rate during the next three years, the service will be seriously crippled. To remedy this evil the board suggests that an act be passed by the Legislature providing that the pilots shall select from their crews the best and most reliable men who have served at least two years as boat-keepers, and recommend them for promotion as often as a vacancy occurs or the demands of the service require additional pilots.

State Prison.—The average number of convicts in the State Prison during the year was 892, as against 863 for the previous year. The

total expense of the State Prison for all purposes for the year ending Oct. 31, 1886, was \$151,053.28, being an increase of \$16,401.44 over the total expenses of the previous year. The total earnings for the same period were \$66,411.03, being an increase over the previous year of \$8,889.18. The net cost of the Prison to the State for 1886 amounted to \$84,642.25, being an increase over 1885 of \$7,532.26.

Political.—The Democratic State Convention met in Trenton on September 28, and nominated Robert S. Green for Governor. The following are extracts from the platform:

We contemplate with pride and satisfaction the administration of Gov. Abbott, and cordially affirm that he has redeemed, with full, well-rounded measure, every pledge made by him to the people of New Jersey when he was a candidate for their suffrages. By reason of the adoption of many of his wise recommendations the State Treasury has been guarded by the hands of prudence and economy. The enactment of portion of the system of taxation of corporations, recommended in his inaugural address, has, during his entire administration, protected the people from the imposition of a general tax for the use of the State government. His earnest and successful efforts to ameliorate the evils resulting to honest workmen from the competition of convict-labor, entitles him to the gratitude of all fair-minded citizens.

We demand that the laws governing immigration shall be so amended and enforced as to absolutely prevent the importation of convict and pauper labor. We welcome manhood in search of liberty and equality; we will not tolerate the intrusion of those who would assail that manhood by degrading competition.

We applaud the efforts of the Democratic House of Representatives to restore to the public domain millions of acres delivered by Republican Congresses to satisfy the greed of corporations and the grasp of foreign speculators. The public lands of the United States should breed homesteads—not railroad stock. Whenever the conditions upon which those lands were granted have been violated, forfeiture must be enforced. Over the acres which are to be the homes of millions the Democratic party has alone proved itself capable of maintaining the legend, "These lands are held by the people, for the people." The interest-bearing debt of the United States should be reduced whenever the surplus in the Treasury can be used for that purpose. Idle dollars discourage honest hands.

Every child is entitled to a fair education at the expense of the Commonwealth. Laws for the regulation of the employment of children should be so framed and enforced that the brains and bodies of the youth of to-day shall not be unfitted for the healthy comprehension and performance of the duties of the citizen of to-morrow.

The Democratic party sympathizes with the workingmen of the country and recognizes the justice of their complaints against the invidious legislative distinctions which have been made in favor of consolidated capital, and we submit that an unbiased review of the record of the Democratic party supports its claim to be the protector of the working men and women of the United States. We are in favor of enactments that will remedy the evils of which labor justly complains. We favor the protection of the wage-workers of the country in their right to fair compensation, and denounce as unjust the laws which protect capital in its assault upon labor. Labor and capital should be friends, seeking a common prosperity, and, to the end that this friendship may be promoted, we favor legislative encouragement of the principles of arbitration.

It is the duty of the State to encourage and foster the interests of those who are engaged in agricultural

pursuits. We favor such legislation as will protect the people of New Jersey from the imposition of unjust rates for the transportation of freight, charged in order to cover losses incurred by common carriers in their competition for business to and from points in other States.

The Republican State Convention met on October 5, and nominated Benjamin F. Howey for Governor. The platform contains thirteen declarations, as follows: First, reaffirming adherence to Republican principles; secondly, declaring the party to be the defender of American labor, and protesting against imported contract labor; thirdly, pledging support to every just measure sought by organized labor; fourth, favoring equal taxation; fifth, declaring agriculture to be the foundation of the nation's wealth; sixth, in favor of generous pensions and the continuance of Union soldiers in public office; seventh, demanding protection for the Jersey fisheries; eighth, pledging the party to the principle of non-partisan judiciary; ninth, for the redemption of the trade dollar at face value; tenth, arraigning the Democracy for its disposal of Federal offices; eleventh, against unjust discrimination in freight transportation; twelfth, declaring in favor of the "submission of the question of the regulation, control, or prohibition of the liquor-traffic to the votes of the people at elections specially provided for this purpose"; thirteenth, pledging hearty support to the candidate of the convention.

The Prohibition State Convention met in Newark on May 28, and nominated Clinton B. Fiske for Governor. The following are the essential portions of the platform:

Resolved, That we reaffirm our allegiance to the National Prohibition party, and favor both State and national constitutional prohibition of the importation, manufacture, and sale of all alcoholic beverages, and the enforcement thereof by appropriate legislation administered by officials thoroughly in sympathy with the same.

That it is good law, reason, and logic, that all who aid, abet, procure, hire, counsel, or in any way assist in the commission of a crime, are guilty of the crime, though not present at the commission thereof, and therefore we affirm that all who license, or in any way favor the continuance of this traffic, and all Legislatures which license, and all political parties which favor license, and all men who vote for parties which license, or for parties which will not declare for prohibition (where there is a Prohibition party), do make themselves accessory to the liquor crime and equally guilty with the man who carries on the traffic.

That we sympathize with every proper effort of the wage-earner to improve his moral, social, and financial condition. But we declare that total abstinence for the individual, and the prohibition of the liquor-traffic by the State, lie at the threshold of labor reform.

We do not and can not treat labor as a class; but every species of violence, corruption, and fraud is the common enemy of all the people, and we denounce as the common enemy of mankind all those who resort to violence by explosives or other weapons, and all those who secure land-grants or special privileges, or exemption from taxation, or other improper legislation by corruption of public bodies, or by the use of money corruptly in elections; and all those who wreck railroads, water-stock, and under color of laws obtained by corrupt practices and orders made by corrupt judges, plunder the innocent under cover of law

—all these, whether millionaires or beggars, are equally anarchists, nihilists, and public criminals, together with all who aid, abet, or consent to profit by such corruption.

That we favor equal taxation of all property, corporate and individual, at the same rate where located, by general laws, according to the Constitution; and we denounce as suicidal to free and equal government the idea that any corporation can have any contract to be forever exempt from equal taxation.

That we favor the free competition of railroads, and oppose any attempt to repeal or limit the operation of the general railroad laws.

That we demand the enactment of laws requiring that physiology and hygiene, with special reference to the effect of stimulants and narcotics on the human system, be taught in our public schools.

The result of the vote on November 2 was as follows: Democratic, 109,939; Republican, 101,919; Prohibition, 19,808; scattering, 28. Two Democrats (Fourth and Seventh Districts) and five Republicans were elected to Congress. The Legislature, when it met in 1887, consisted of 12 Republicans and 9 Democrats in the Senate, and 26 Republicans, 31 Democrats, and 2 Labor men in the House, with one vacant seat, for which a tie vote had been cast at the polls.

NEW MEXICO. Territorial Government.—The following were the Territorial officers during the year: Governor, Edmund G. Ross; Secretary, George W. Lane; Auditor, Trinidad Alarid; Treasurer, Antonio Ortiz y Salazar; Attorney-General, William Breeden. Supreme Court: Chief-Justice, Elisha V. Long; Associate Justices, William H. Brinker and William F. Henderson. N. B. Laughlin claimed to be Attorney-General by appointment of Gov. Ross, while Mr. Breeden held under a commission from Gov. Sheldon, the predecessor of Gov. Ross. The Supreme Court recognized Mr. Breeden as the *de facto* Attorney-General.

Political.—The Republican Territorial Convention met at Las Vegas on the 6th of September, and nominated Joseph W. Dwyer as candidate for delegate to Congress. The following are extracts from the platform:

That we arraign the Democratic Administration for its failure in keeping its promises of civil-service reform. That its promises to the people of this and other Territories to appoint residents thereof to fill the several Federal offices have been repeatedly and persistently broken.

We charge that the land officials appointed for this Territory, disregarding their oath of office, in defiance of the law defining their duties, without evidence, without investigation, without even *ex parte* inquiry, and without a single fact to justify their allegations in declaring in official reports and in public prints that 90 per cent. of all the real estate owned by citizens of this Territory was obtained by fraud, that titles to land in small and large bodies are worthless, are guilty of a gross misrepresentation, and that such declarations are false, and made for political effect.

We arraign the national Democratic Administration for its hurtful and persistent disregard of the material interests of the great Western States and Territories of the United States. It raised the small-pox sign over our Territory and other Territories and States in the West by suspending the issuance of patents to lands upon which final proof had been made in more than 30,000 cases, regardless of whether they were

fraudulent entries or not, thereby punishing honest settlers who are struggling for existence against adverse circumstances, upon the flimsy pretext that some fraudulent entries exist.

We charge that the present Democratic Administration of this Territory, by a system of misrepresentation and slander of our people, has driven or kept immigration and capital from among us. We are in favor of the fullest encouragement of the mining interest of this Territory, believing that the future welfare and prosperity of the Territory depend in a very large measure upon the development of our mineral resources. We are in favor of the continued coinage of silver, and the issuance by the Government of silver certificates based upon the deposit of bullion in small as well as large denominations.

We are in favor of a tariff which will protect our copper, lead, and wool interests.

We earnestly submit that all the rights and privileges claimed by the cattle-owners of this Territory are equally due to the owners of sheep on their respective ranges.

The Republican party is at all times a friend to free common schools, open to all the youth of the Territory, to be supported by the public revenues.

We are in favor of immigration to our Territory of good and law-abiding citizens, but are opposed to foreign corporations coming among us for the purpose of monopolizing our grazing-lands to the detriment of our own people.

We are in favor of the appointment of a commission by Congress, clothed with full power to settle the land-grant titles in this Territory, and also that such commission be limited to the shortest possible time in which to fairly accomplish the work assigned to it.

The Democratic Territorial Convention, which was called to meet at Socorro, September 8, did not finally convene until the 11th, owing to the detention of delegates by floods. Antonio Joseph was nominated for re-election as delegate to Congress. The following are extracts from the platform:

We demand the incidental protection of silver by the unlimited coinage thereof, and assert that the Republican party has shown itself inimical to our greatest interests by its course in Congress in heretofore demonetizing silver; and that, as evidence of the fact that the Democratic party is worthy of trust, we point to the restoration of silver as currency, and to the firm course of the Democratic representatives to Congress in resisting legislation tending to depreciate the value of this metal.

We hereby approve of the act of the present Congress, providing a system of arbitration for adjusting the differences between capital and labor.

We further congratulate the people of New Mexico upon the solution of the Indian problem in our southern counties, and the removal of the Indians from New Mexico and Arizona, and in thanking Gen. Nelson A. Miles for the ability and energy which he has displayed, and which have led to such desirable results, and we deem it fitting to call attention to the fact that, in all his efforts, he has been ably seconded by the Democratic Administration of New Mexico.

We heartily approve of the bill presented in Congress by our delegate, Mr. Joseph, looking to the settlement of claims under land grants in this Territory.

We believe that those persons who have settled upon, and for a term of ten years or more occupied and cultivated, small tracts of land in this Territory, should be confirmed in their holdings and given good title according to lines established by neighborly understanding, without regard to the strict subdivisions of Government survey.

With the funding of the floating debt of the Territory and a thorough revision of our revenue laws, the credit of New Mexico could be placed at once upon a firm basis and warrants brought to par value. We,

therefore earnestly commend such action to our next Legislative Assembly.

That we favor the passage of laws prohibiting the issuance by county and Territorial authorities of any warrants or other evidences of indebtedness unless at the time of their issuance there be money in the treasury to pay them.

That, recognizing the fact that general intelligence is the only safe foundation for free government, we unqualifiedly declare ourselves in favor of the enactment of an efficient general school law by our next Legislative Assembly.

The platform favors congressional aid to the schools of the Territory, the repeal of laws taxing denominational schools, the exemption from taxation of all school property and public libraries, the treatment of corporations as individuals, and the prevention of unjust discrimination by them against home industries, a congressional appropriation to pay the militia for services in Indian campaigns, and the equal rights of owners of cattle and sheep to pasture their herds and flocks on the public domain. On November 2 the vote for delegate was as follows: Democratic, 16,249; Republican, 12,346; total, 28,595; Democratic majority, 3,903. The Legislature consists of 7 Republicans and 5 Democrats in the Council, and 13 Republicans and 11 Democrats in the House. It met on December 27.

Capitol Building.—The new Capitol was ready for the session of the Legislature. The Governor says: "I transmit herewith the report of the Capitol Building Committee constituted by the act of March 28, 1884. It affords me great satisfaction to be able to say that this building has been completed in all respects within the jurisdiction of the committee, practically within the sum appropriated therefor. The building is first class in every particular, and in its material, design, and construction the Territory has received the worth of the money expended."

Public Schools.—The public-school law of the Territory embodies many of the best features of the laws in force in some of the most enterprising and progressive States of the Union. It provides for a general levy of three mills on the dollar for school purposes, divides the counties into school districts of convenient size, and authorizes the organization of new districts for the convenience of the people upon the petition of ten or more heads of families. It provides for each county a school superintendent, and for a board of three directors in each district. The superintendent has general charge of the public-school interests of the county, apportions the public funds to the several districts in proportion to the number of persons therein of school age (five to twenty years). He is required to visit each district at least once a year, and to see that the school law is properly enforced. The directors have charge of the schools within their respective districts, receive and disburse the district funds, employ and pay teachers, rent or build school-houses, and do whatever they deem best to forward the interests of

education in the district. A growing interest is being manifested by all the people of the Territory in educational matters. The Spanish-speaking portion of the people especially exhibit a marked anxiety that their children shall be educated in the English language. There are still some defects in the existing system, both in the text and in the methods of execution, for which the Governor suggests remedies to the Legislature.

Debt, Taxation, and Resources.—The total taxation for all purposes, Territorial and county, is less than 2 per cent., and three mills on the dollar of that is for public-school purposes. The funded debt of the Territory is \$350,000; for Capitol and Penitentiary buildings, and the floating debt probably \$100,000. But few of the counties have indebtedness of any considerable amount, and generally for necessary public buildings. The increase of taxable property during the past year is about \$7,500,000, the amount of assessment for 1886 being \$56,000,000.

Live-Stock.—The following table gives the number of horses, cattle, and sheep assessed in the various counties during the year:

COUNTIES.	Horses.	Cattle.	Sheep.	YEAR.	Total rainfall.	Number of days.	YEAR.	Total rainfall.	Number of days.
Bernalillo.....	2,288	10,324	377,247	1872.....	9.89	75	1880.....	9.89	86
Colfax.....	5,211	172,177	61,186	1873.....	9.73	83	1881.....	21.75	96
Dona Ana.....	864	19,408	18,605	1874.....	19.83	102	1882.....	11.87	91
Grant.....	8,292	70,791	6,572	1875.....	18.79	91	1883.....	11.71	94
Lincoln.....	8,497	290,598	110,108	1876.....	15.07	87	1884.....	12.09	83
Mora.....	2,518	48,490	78,001	1877.....	13.15	83	1885.....	14.89	84
Rio Arriba.....	2,615	9,586	210,314	1878.....	19.89	89	1886.....	15.73	75
San Miguel.....	7,322	184,489	484,530	1879.....	11.44	65			
Santa Fe.....	690	4,900	45,900						
Sierra.....	1,799	81,197	22,045						
Socorro.....	2,826	87,718	65,189						
Taos.....	1,103	1,982	72,140						
Valencia.....	935	45,000	150,000						

Droughts and Floods.—The Governor, in his report to the Secretary of the Interior, dated October 6, says: "During the first half of this calendar year New Mexico, in common with the West generally, was afflicted with unusual drought, and serious damage was sustained by the cattle industry, especially, from the insufficiency of grass on the ranges and of water in the springs and smaller streams. Agriculture and mining also suffered, though in a much less degree, from the scarcity of water. Since early in July, however, the usual beginning of what is known as the rainy season, the rains have been unusually abundant in all parts of the Territory. Feed on the ranges is good, with stock-water in good supply and convenient, and stock is rapidly getting into excellent condition for winter. Agriculture, too, has been equally benefited, and crops of all kinds will be fully up to the average in quality and yield per acre, while the acreage has been largely increased over that of any former year. The rains have, in some parts of the Territory, resulted in disastrous floods, doing great damage to roads and bridges and other property, especially to railroads. Many miles of railroad have been broken by these sudden

freshets, and portions of track washed entirely away or submerged in the quicksands of the streams they crossed or bordered.

"In these meteorological conditions for the year, and the resulting floods, lie an admonition and a lesson which should not be forgotten, and which pointedly illustrate the need of some effective plan of storing the surplus waters, briefly suggested in my report of last year. A system of storage-basins at the heads of the several streams of the Territory, especially the Rio Grande, for which the numerous cañons and arroyos are excellently adapted, would save a vast amount of water, sufficient to irrigate not only the river valley proper but also the mésas or uplands bordering and overlooking it, practically to the foot of the chains of mountains on either side, running parallel therewith. This would reduce to cultivation many millions of acres of productive land, now barren and desolate for the lack of water, much the larger portion of which is still public land and the property of the Government."

Rainfall.—The following table indicates for Santa Fé, not only the yearly rainfall, but the number of days in each year on which there was any rain or snow:

According to the official figures, the city has never, during the past five years, gone longer at any time without rain than seventeen days. These figures would seem to warrant two highly important deductions: that in New Mexico the rainfall is not only increasing from year to year, but shows a marked improvement in the manner of distribution as relates to time. The average rainfall from 1870 till 1885, inclusive, was 15.3 inches at Fort Bayard, in the southwest; 16.74 at Fort Union, in the north; and 15.52 at Fort Wingate, in the west. At Fort Stanton, in the southeast, the average was about the same.

The End of Indian Depredations.—After the beginning of April, when Gen. Nelson A. Miles assumed command of the military department, there was not a single instance of depredation by hostile Indians upon life or property in the Territory. During the year prior to that date not less than one hundred people had been murdered, and many thousands of dollars in property had been destroyed. These murders were accompanied by horrible atrocities, till a panic pervaded the southwestern portion of the Territory. Every description of business was stagnant, and the people remote from the larger settlements were abandoning their homes and

enterprises. But the policy of Gen. Miles, which resulted in the expulsion from the southwest of every element of Indian hostility, re-established confidence and safety throughout that region.

Agricultural Development.—Gratifying developments in the agricultural capacities of the Territory were made during the year. It has been demonstrated that large portions of country, especially in the mountain districts, are well adapted to the growing of small grains and many varieties of vegetables without artificial irrigation. These crops have been thus successfully cultivated at altitudes of from 5,000 to 8,000 feet, and the yield has been as large as the average yield of the Western States, and very frequently much larger, especially of wheat, barley, rye, oats, and potatoes. This success is undoubtedly attributable to the increased moisture incident to the altitude. At all seasons of the year rains are much more frequent in the mountains than in the valleys, and this, together with the now established fact that agriculture may be successfully followed in these localities without the expense and labor of irrigation, is bringing the mountain-regions into much greater demand for agricultural purposes. A very active interest has also been developed in the cultivation of trees, especially in the cities and towns of the Territory.

Cultivation of Alfalfa.—The cultivation of alfalfa, or California clover, has during the year become somewhat general, and is invariably successful. This grass is harvested from two to five times a year, according to latitude. The average yield at each cutting is from $1\frac{1}{2}$ to 2 tons an acre. It sells at an average of \$15 a ton. Its capacity to withstand drought is somewhat remarkable after becoming well rooted, and it does not ordinarily require reseeding for from twenty to forty years, and is therefore a crop peculiarly adapted to a climate like that of New Mexico. It is generally upon the stock-ranges that the experiment of its cultivation has been tried here, and it has been so exceptionally successful that there is every prospect that its cultivation will in due time become general throughout the Territory. "The good results of its general cultivation," says the Governor, "will become manifest in several respects. It will improve the quality and increase the quantity, and consequently the value, of the meat product of the ranges. It will increase the value of the land, thereby making it more valuable for agricultural than for grazing purposes. The result of that will be the eventual breaking up of the great cattle-ranges, and their division in small farms, with smaller numbers and better grades of cattle, and diversified products, till a ranch of 10,000 acres, which now gives employment to and supports perhaps fifty citizens of the Territory, will be broken into perhaps fifty times that number of farms and homes of families and a hundred times that number of peo-

ple; and people are worth more to the State than steers. This is the great change that is coming to New Mexico through this and similar agencies, inducing radical climatic changes, slow but none the less inevitable, and accelerated by artificial and natural methods. The same causes have produced equally radical climatic and industrial changes elsewhere, and those causes are now at work here with equal certainty of the same result."

Land Titles.—The Governor calls the attention of the department and of Congress to the very urgent need of legislation for the settlement of titles and claims to real and pretended Spanish and Mexican grants in the Territory. He says :

"While there is here a vast area of public land, embracing eligible locations for all purposes — agricultural, mineral, grazing, and otherwise—these grants absorb much of the best lands of the Territory, and being a conspicuous feature of our land system, the condition of uncertainty as to title, created and maintained in so many instances by questionable practices, has, not unnaturally, in the public mind, cast a cloud upon titles to real estate, which has tended to repel immigration and investment and to retard development.

"The conditions of land-tenure established by the Spanish Government and prevailing here at the time of the conquest and annexation, were so essentially different from those peculiar to the public land States of the Union, and the delay in the adjustment of these titles contemplated by the act of 1854 has so greatly added to the complication of those conditions, that correspondingly different methods for that adjustment have become imperative for the preservation and protection of private rights. To attempt that adjustment by judicial process would not only overburden the courts to a degree that would amount, on the one hand, to a denial of justice to a very large class of honest, deserving people, and on the other to the eviction of rightful claimants of thousands of small holdings, through their inability to meet the costs of litigation.

"It is not generally known elsewhere, but is nevertheless the fact, that very much the larger number of the original land-holdings in this Territory consist of but a few acres each —say, from five to fifty—which have been transmitted from father to son through several generations. These owners were originally what is known in the United States as 'squatters' on the public domain. There were no surveys, and each took according to his own idea of his needs and his ability or desire to improve. Their lines were laid in every conceivable irregular shape, according to the configuration of the country. They had as a rule no monuments of title, and neither needed nor desired any. The right of possession and occupancy gave an acknowledged and perfect title under Spanish and Mexican custom and law. These people are simple, honest, law-

abiding, and thoroughly loyal. By treaty stipulation they were assured of the same degree of protection as citizens of the United States, to which they were entitled as citizens of Mexico. To subject them now to unnecessary sacrifices in the perfection of titles to homes to which they already held perfect title as citizens of Mexico, would certainly be inconsistent with the treaty guarantees under which they became citizens of the United States. In no way yet devised can those treaty guarantees and strict justice to those people in respect to their land titles be so fully conformed to and secured as by the adoption by Congress of the plan embodied in the pending House bill.

"A considerable portion of the lands held by the native citizens is included in community grants, lands originally taken up under a general law of Spain, and occupied and held in common by the grantees and their descendants. These lands are becoming valuable by the general development of the country, and the temptations and opportunities for the procurement of undivided interests therein by designing and unscrupulous persons are becoming very great, and daily increasing, to the loss and wrong of unsuspecting and credulous occupant members of the community. I deem it important for the protection of these people that the tribunal to be provided for the investigation and adjustment of claims to these grants shall be authorized also to allot in severalty to each actual occupant of all community grants his proportion, in quantity and value.

"A serious and threatening evil to the welfare of the Territory exists in the presence of great landed estates that have been developed in the larger Spanish grants that have been confirmed to individual claimants by Congress under former Administrations. Some of these grants are of enormous extent, ranging from hundreds of thousands to near two millions of acres. Their owners, some of them aliens, persist in holding these vast bodies of land intact, refusing to subdivide or sell any portion on any terms, with the avowed intention of establishing thereon a system of tenantry, antagonistic to and subversive of American industrial economy, American society, and American government. This purpose of the holders of these estates, unless thwarted by prompt action, can not but breed mischief, morally, industrially, and politically."

The House bill referred to provides for a commission to adjudicate titles to Spanish and Mexican grants.

NEWSPAPERS. The earliest newspaper in America was one begun in Boston in 1690, entitled "Publick Occurrences." The authorities objected to it, and a second number was never issued. The first permanent one was the Boston "News-Letter," founded in 1704, and continuing until 1775. Philadelphia published a journal in 1719, and New York one in 1725. From that time until the beginning of the Revolution the number increased slowly.

The principal towns were not large enough to do more than allow them to exist, and it was impossible to send their issues far away from home, as the roads were bad and all methods of communication were infrequent. At the outbreak of the war with England in 1775 there were 39 journals of all kinds, none of them taking the entire time of the editor, who was always a printer and frequently a bookseller. Several of these periodicals ceased while the conflict was going on; but, after it ended, numbers sprang up, many being away from the seaboard. Kentucky had one in 1787, and Ohio another in 1793; but no considerable progress could be made in their conduct until the post-roads and other highways were greatly improved, and until mechanical inventions had been made that would enable a large number of copies to be printed in a short time. As it happened, these improvements came nearly together. Both railroads and steam-presses went into operation in 1830, although known here for a year or two before. Until that time it was impossible for a newspaper to print on a single press more than three thousand copies in a day, even when labor was carried on for the entire twenty-four hours. The greatest speed was two hundred and fifty copies an hour on one side, this requiring two expert workmen. The printer's craft had not advanced between the years 1700 and 1800, and at the latter date he was obliged to purchase everything except paper in Great Britain. Ink was not made here; there was only one small type-foundry in the country; presses were imported, and so was everything else necessary for carrying on the art properly. But a change began in 1796, when Binney and Ronaldson opened a type-foundry in Philadelphia. Shortly afterward Ramage began making wooden presses better than those brought from abroad, and in 1805 ink was manufactured. In 1817 and 1818 iron presses were made, allowing sheets of double the former size to be printed. In 1827 or 1828 composition-rollers were brought into use, and about a year later power-presses. These were at first propelled by horses or mules, steam being applied in 1835 or 1836. From that time to this there has been a continual succession of improvements, some of very great value, each enabling the press to reach a higher point. It has been obliged to follow these changes, and its step could be no more rapid than theirs. To print as many copies as our largest Sunday paper now issues in four or five hours, would in 1809 have required the labor of a hand-press, as newspapers were then printed, ten hours a day for seven years and a half. The largest office in the city then had nine hand-presses. If it had worked night and day, with relays of pressmen, it would have taken nineteen weeks. To do it in the time that the "World" accomplishes its feat would have required 5,600 presses and 11,200 pressmen—four times as many presses and pressmen as there were in

the Union at the time. The type also would have had to be set up two hundred times.

Improvements in Journalism.—It was not long after the introduction of the power-press when penny papers came into existence. Hitherto the poorer people had never read daily papers, as they were too expensive. The stranger who wished to see one must go to a porter-house or a coffee-house where it was kept on file. He could not buy one in the streets and hardly at the office. In 1832 it occurred to Horatio David Shepard, a young man of enterprise, that there would be a demand for a cheap periodical, and he accordingly launched one in conjunction with Horace Greeley. It was unsuccessful; but others had better luck. Soon after this the Baltimore "Sun," New York "Herald," Philadelphia "Ledger," New York "Sun," and New York "Tribune," now among the most successful, were founded. They appealed to the classes that had never before read the news each day. Their predecessors rarely printed more than 1,500 copies for each issue, and many of them not half that. One of the largest received during the whole of one year, from advertising and subscriptions, no more than \$40,000. The cheap dailies soon attained a circulation of 10,000 or 15,000 copies a day, and in twenty years some of them reached 60,000. With increased prosperity came new expenses. In 1830 the staff of a large daily newspaper comprised two persons. The editor wrote the leaders and corrected the communications; the assistant did all the rest. But competition induced the journals, in 1837 or 1838, to add reporters, who were before unknown. The number of these and of editors gradually increased. In 1840 two reporters and two editors were sufficient for any daily; in 1850, four editors and five reporters; in 1860, eight editors and ten reporters; but now twenty editors and forty reporters are required. In 1844 the electric telegraph went into operation; but it was not much used by the press for several years. In 1847 a new Hoe press, more rapid than anything previously known, came into use; and it came just in time, for the previous style had in its turn become inadequate. In 1849 the New York Associated Press was begun for the collection of ship-news; but it shortly afterward attempted gathering news of all descriptions. Newspapers in other sections imitated this combination, until now the whole of the United States is covered with one or the other of these organizations. In 1859 newspapers were first stereotyped by the paper process. The mold being flexible, the plates could be cast in segments of a circle, and the efforts of an ingenious inventor, Bullock, showed how much smaller and more compact a press could be made by their use. The war gave a prodigious impetus to the newspapers. Every one felt the deepest interest in what was going on, and circulations doubled, while correspondents followed the army in the field everywhere. Most

of the advantages then gained were retained after the conclusion of the struggle, and class papers then began to appear in large numbers. Religious newspapers date back to the first quarter of the century, as do agricultural ones; but the great variety now found in trade, commerce, mechanics, and art was unknown before 1860. In the time of the war, paper was very dear, and inventors applied themselves to find substitutes for cotton and linen rags. Straw was manufactured in several ways for this purpose, and since that period wood has come into general use. More than half the paper used on journals is now made of wood-pulp, the majority of what is left being of straw. The last great improvement connected with newspapers is the discovery of a way to feed the press automatically. A gigantic roll comes from the mill, is unwound and moistened, then wound again and placed so as to revolve, and the paper is drawn in as needed by the machine. This saves the labor of eight or ten men on each press, and is more to be depended upon than hand-feeding. There are a countless number of other improvements, many very useful and valuable, but these are the main ones. Type-setting by machinery has often been attempted, but, although easy to be done, has so far never proved a commercial success.

Places of Publication.—A single newspaper is nearly always found at each county-seat, and, if the town is large or the county is populous, there may be two or three. A place that is a dozen miles from any other where a newspaper is printed, and has 1,000 inhabitants, is also likely to have a journal of its own. Towns of 3,000 population will have two, of 5,000 three, and of 8,000 four. At 12,000 there is a daily newspaper, at 20,000 two, at 50,000 four, and at 100,000 five or six. Beyond this the number does not increase rapidly. New York has twenty-nine dailies, Philadelphia twenty-four, Chicago eighteen, Cincinnati twelve, and San Francisco twenty-one. But the circulation of the papers in the larger places is greater relatively than in the smaller ones, more copies being issued in a place of 500,000 inhabitants than in five of 100,000. This is because the journal from the large city, being a fuller compendium of news, is received in them and read, while the newspapers in the small towns only circulate in their immediate neighborhoods. In all, there were, in 1880, in the Union 4,398 places where newspapers are published, and an average of two and a half newspapers to each place. Their average distance from one another was twenty-six miles; but this is greatly diminished in the more populous portions of the country, and particularly in the East. In Massachusetts there are 136 towns that issue periodicals, and in New York 364 towns, bearing an average distance apart in the former of seven, and three quarters and in the latter of eleven and a half miles. The number of newspapers in the United States increased from 39

in 1775 to 150 in 1800, 366 in 1810, 861 in 1828, 1,403 in 1840, 2,526 in 1850, 4,051 in 1860, 5,871 in 1870, 11,314 in 1880, and 14,160 in 1886. The annual ratio of increase is 2·60 per cent. Three hundred and sixty-nine have lasted fifty years. The following table shows the ratio of growth of each kind since 1850:

CLASS.	1850	1860	1870.	1880.	1886.
Daily.....	254	887	574	971	1,216
Tri-weekly.....	115	86	107	73	41
Semi-weekly.....	31	79	115	138	152
Weekly.....	1,902	3,173	4,295	8,883	10,635
Bi-weekly.....	...	...	42	66	
Semi-monthly.....	95	...	96	160	247
Monthly.....	100	280	622	1,167	1,603
Bi-monthly.....	5	...	13	18	26
Quarterly.....	19	30	49	122	124
Total.....	2,526	4,051	5,871	11,314	14,160

Those in 1880 were published in 2,605 counties, 329 villages or cities issuing five or more. They employed in the mechanical department 51,140 males and 3,875 females, of whom New York had 9,165; and there were engaged in writing 16,600 persons, New York having 3,237 of these. The gross value of the products of New York was \$24,266,911, and of the whole of the United States, \$89,009,074. A little less than half of the income came from advertising. The average circulation of the dailies in Montana was 304 copies; but in Maryland, the other extreme, it was 9,472. The average for the whole country was 4,137. The average circulation of newspapers in rural regions of the West is not much more than 200 copies. The largest circulation is that of a juvenile in Boston, which prints about 400,000. The consumption of paper in the census year was 189,145,048 pounds. The number of copies printed was 2,067,848,209. The table in the next column shows the number of newspapers published in 1886.

The post-office reports show that New York sent a little less than one quarter of all the papers going through the mail in 1886, Chicago 10 per cent., Boston 6 $\frac{1}{4}$, Philadelphia 5 $\frac{1}{4}$, St. Louis 4 $\frac{1}{2}$, and Cincinnati 3. Twenty places sent nearly 70 per cent., the total number of pounds being 109,962,589. Postage is prepaid by publishers, at one cent a pound.

Increase in Expenses.—The principal development of newspapers is in the cities of New York, Chicago, Philadelphia, and Boston, and to a less degree in San Francisco, St. Louis, Cincinnati, Baltimore, and New Orleans. All other journals are to some extent made up from these. The greatest efforts are made to obtain news, with fullness and completeness, and to distribute their issues through a large extent of territory.

The increase in the labor put upon a single journal is as remarkable as the growth otherwise. No man lived entirely by writing for a newspaper at the beginning of the century, but the number thus engaged, and their compensation, gradually increased. In 1850 Horace Greeley testified, before a committee of the

STATES.	Dailies,	Weeklies,	Monthlies,	Total of all kinds.
Alabama.....	11	125	7	146
Arkansas.....	10	185	7	136
California.....	61	236	87	414
Colorado.....	18	122	5	152
Connecticut.....	27	112	22	165
Delaware.....	4	25	2	32
District of Columbia.....	6	26	15	51
Florida.....	6	80	9	102
Georgia.....	20	176	22	231
Illinois.....	98	812	173	1,124
Indiana.....	61	428	53	564
Iowa.....	42	629	50	731
Kansas.....	39	582	18	595
Kentucky.....	14	162	23	220
Louisiana.....	9	100	9	120
Maine.....	12	93	28	141
Maryland.....	14	134	15	171
Massachusetts.....	49	852	113	581
Michigan.....	40	459	38	592
Minnesota.....	18	278	24	325
Mississippi.....	4	119	4	129
Missouri.....	47	506	81	668
Nebraska.....	17	388	14	376
Nevada.....	12	15	..	28
New Hampshire.....	11	87	12	112
New Jersey.....	84	197	24	266
New York.....	143	982	316	1,577
North Carolina.....	12	127	16	162
Ohio.....	69	653	126	908
Oregon.....	7	74	8	87
Pennsylvania.....	122	745	180	1,103
Rhode Island.....	7	88	7	52
South Carolina.....	4	80	5	95
Tennessee.....	12	147	32	203
Texas.....	31	806	27	875
Vermont.....	4	54	11	76
Virginia.....	18	153	89	215
West Virginia.....	5	120	5	132
Wisconsin.....	30	354	28	422
Territories.....	68	459	19	562
Total.....	1,216	10,685	1,603	14,160

House of Commons, that the highest rate of compensation on an American newspaper was \$2,500 a year; but this is now more than quadrupled. For a single news article \$1,000 has been paid, and to obtain and print a transcript of a treaty with Spain cost the New York "Times" over \$7,000. Telegraphic bills are very heavy. They vary from \$30,000 to \$60,000 a year on the largest papers, and instances have been known of much larger sums. The Chicago "Times" paid in one year \$190,000 on this account. A newspaper that spends a million a year divides it about as follows: White paper, \$400,000; editorial expenses, \$200,000; telegraphing, \$50,000; type-setting, \$100,000; the remainder being divided among other things. Several journals equal, and some surpass, these figures. Several earn profits of from \$300,000 to \$500,000 a year. Their offices in all cities are now among the most handsome and imposing edifices there to be found.

Subsidiary Industries.—The printing, writing, and distributing of newspapers have created many lesser industries. The bulk of the circulation of dailies goes into the hands of news-dealers, who obtain their supplies either directly from the offices or from news companies. Of these latter, the largest is the American News Company, which deals in fancy goods, stationery, and books, as well as in newspapers. It takes of each of the more largely circulated journals of New York, from 10,000 to 50,000 copies each morning, and supplies lesser

dealers everywhere. The retail newsdealers are in very great numbers in all the principal places, delivering the bulk of the daily newspapers, and a large share of those of other periods of issue. Folding and mailing is another branch. In some cities contracts are made to supply the dailies with local news, which is furnished, in duplicate on thin paper, to each. The office that does this keeps up a multitude of reporters, but prints nothing itself. As it supplies its copy for low rates, some newspapers take it, to prevent loss of news by accident, but others do it to save expense, fewer reporters are then required. A very large business is that of advertising agencies, a hundred or more of them being in operation. They gather advertisements from the public, and insert them in newspapers at the published rates, receiving a commission from the papers. Some are on a very large scale, receiving and spending nearly \$1,000,000 a year. Much of the expense of carrying on periodicals comes from the cost of type-setting. Shortly after the war, offices were established in which type was set for several papers, the matter being transferred from one to another without expense. Soon this was extended so that part of a journal was printed, the incomplete sheet then being sent by freight or express to a local office, when it was again put on the press with local news. This proved a very great economy, and there are now 5,000 papers thus printed, the work being done by forty firms. Every size and shape is furnished, as well as every shade in politics. Some establishments also send out stereotype plates, which answer the same purpose.

Another secondary occupation is that of literary agents, who buy from authors and newspaper men of reputation letters, articles, and brief novels, for which they pay a certain price, and then dispose of the manuscript simultaneously to several periodicals.

The most remarkable development of the press has been that of class journalism. One third of the sheets published in New York make no pretense of giving the ordinary political and social news of the day, but supply that of a particular occupation or belief with great fullness. The largest divisions are those of religion, trade, and commerce, education, law, medicine, and mechanics; but there are more than a hundred subdivisions. While their circulations are not so large as that of general periodicals, they spend much money in obtaining and presenting news and comment in their own line. Another class is that of illustrated papers, including satirical and humorous periodicals. The engravings in these are generally excellent, their whole appearance being very handsome.

British America.—A great increase in the number of newspapers is also witnessed in Newfoundland and the Dominion of Canada. Excellent periodicals are published in Toronto, Quebec, and Montreal, and no town of any

size is without one. Those now issued are as follows:

PLACE.	Dailies.	Weaklies.	Monthlies.	Total of all kinds.
British Columbia.....	4	4	..	11
Manitoba.....	3	23	1	27
New Brunswick.....	5	25	5	89
Northwestern Territories.....	..	6	..	..
Nova Scotia.....	5	31	5	49
Ontario.....	37	320	40	416
Prince Edward Island.....	2	8	..	10
Quebec.....	23	59	20	113
Newfoundland.....	2	4	..	8

The difference in the totals from the addition of the dailies, monthlies, and weaklies, in this as well as a preceding table, is the number of periodicals with other intervals of issue than those named.

Press Associations.—The general collection and dissemination of news was conducted by individual enterprise on the part of each newspaper until a little less than forty years ago, when, almost simultaneously, the business of news-gathering through associated efforts was begun in Europe and in the United States. In 1849 was formed in New York the organization known as the "Associated Press," which now includes the "Times," "Tribune," "Herald," "World," "Journal of Commerce," "Sun," and "Mail and Express," which has its agents in every considerable town and city in the world, and supplies news to all the leading papers of America, by way of the Consolidated Cable Companies' wires and the Western Union Telegraph. In the chief cities the papers are served by pneumatic tube from the main office of the Associated Press. This powerful organization has a monopoly of the news-gathering business, and is so systematically conducted, under such strict discipline, and with agents so vigilant and experienced, that even in remote places very little escapes it. Something less than twenty years ago a vigorous attempt at competition was made in the organization of the "American Press Association," with John Russell Young, an experienced journalist, at its head, and this institution continued in existence for some years, and accomplished a fair degree of success, but was ultimately driven out of the market by its older and more powerful rival. Besides the newspapers already mentioned as members of the Associated Press, the "Evening Post," "Commercial Advertiser," and "Staats Zeitung" are admitted by contract on equal terms of service with the rest, these contracts being interminable so long as their obligations are sustained by the papers named. The "Mail and Express" is the only evening paper that is a member of the organization, and its membership came about through the union of the "Express," founded by Erastus and James Brooks, and the "Evening Mail," founded by Charles and Henry Sweeter, the Associated Press franchise going with the consolidation. Membership in the Associated Press is valued at about \$250,000, and

the good-will of the organization (which is not a corporation) is estimated to be worth \$2,000,000.

It was in 1849, also, that Baron Jules Reuter, a Prussian, founded the now well-known Reuter's Telegram Company. This was in London, and the innovation was not popular, the leading London newspapers refusing to accept his news. Baron Reuter was forced to confine himself to giving merely financial intelligence, until, in 1859, he succeeded in making a *coup*, which at once gave him the impetus required to insure his success. He had the good fortune to be the first to communicate to the London newspapers a report of the speech made by Napoleon III to the Austrian ambassador, a speech that was the immediate prelude to the Italian War; and this success resulted in Reuter's telegrams being accepted by the London newspapers. Their patronage soon spread, being extended from London to other parts of the United Kingdom, and these telegrams now form the chief source of the foreign news-supply for all provincial papers. Reuter's Agency was converted into a limited company in 1864, and now has a vast number of correspondents scattered over Europe, Asia, Africa, and America. Nearly every day, Reuter's Agency supplies two or three columns of foreign news to the British press. If a war breaks out, or any specially important event is to take place anywhere, special correspondents are immediately dispatched to the scene, precisely as is done by the London journals. The exclusive distribution of all Reuter's telegrams to the provinces is in the hands of the Press Association in London. This organization was founded in 1863, when, by act of Parliament, the telegraph system of Great Britain passed into the hands of the Government. Provisions of the act afforded the press important advantages in the cheap transmission of news, and provincial newspapers at once formed themselves into this Association, which still exists, with headquarters in London, and connections in every town of any consequence in the United Kingdom. It has a manager, editors, sub-editors, and large staff of reporters, for the collection, condensation, and distribution of news. It has a network of correspondents spread over the country, so that, on events of importance occurring, even in obscure villages, the details are quickly transmitted to the head-office in London, and thence retransmitted, after being carefully edited, to clients all over the kingdom. The Central News Agency, founded by W. Saunders, M. P., is also located in London, and is managed precisely in the same manner as the Press Association, except that it has recently begun to collect and distribute foreign as well as domestic news, thus coming into competition with Reuter's Agency. There is also in London the National Press Agency, which has a printing-office of its own, and supplies columns of news, or a "London letter," stereotyped, to weeklies and bi-week-

lies, besides printing political pamphlets and leaflets for the Liberal party. The youngest English press association is the Exchange Company, established a dozen years ago in London, originally for the supply of Stock-Exchange quotations through the "tape," which now is so far extended in its service as to supply general news, and sporting and parliamentary intelligence. This company has central offices in Liverpool, Manchester, and some other large towns. Even the collection of local news in the large cities has, in the United States, fallen into the hands of organizations, of which O'Rourke's City Press Association in New York is the oldest and most important. This may be considered a branch of the Associated Press, as the two work together. The City Press has a large staff of editors, copy-readers, and reporters, and covers the whole of New York, the annexed district, and Westchester County. The news, as it comes over the wires to the Press Associations, or is brought in (if local) by reporters, is manifolded on thin tissue-paper or "flimsy," as it is irreverently termed, and in this form is distributed to the different newspapers, either by messenger-boys or through the pneumatic tube. In the newspaper-offices this is placed in the hands of editors, and is carefully edited, being "cut" or expanded, or united to the dispatches forwarded by special correspondents on the same topics, as the case may be. Often, if the "special" is better or fuller than the Associated Press news, the latter is discarded altogether. Of course, the system has its faults. It may sometimes be placed or fall into the hands of designing persons, and be employed for nefarious purposes. So news may be garbled, falsely told, or not told at all, where there is an object or an interest to subserve by such action. But, taken altogether, the institution is one of vital importance, generally well conducted, and certainly one that the press and the public would find it very difficult to do without, and very costly to replace.

NEW YORK (STATE). State Government.—The following were the State officers during the year: Governor, David B. Hill, Democrat; Lieutenant-Governor, Edward F. Jones; Secretary of State, Frederick Cook; Comptroller, Alfred C. Chapin; Treasurer, Lawrence J. Fitzgerald; State Engineer and Surveyor, Elathan Sweet; Attorney-General, Denis O'Brien; Superintendent of Public Instruction, Andrew S. Draper; Superintendent of Public Works, James Shanahan; Superintendent of the Banking Department, Willis S. Paine; Superintendent of Prisons, Isaac V. Baker, Jr.; Railroad Commissioners, John D. Kernan, William E. Rogers, and John O'Donnell; Commissioner of Statistics of Labor, Charles F. Peck; Superintendent of Insurance, Robert A. Maxwell; State Dairy Commissioner, Josiah K. Brown; Civil-Service Commissioners, Augustus Schoomaker, Henry A. Richmond, and John Jay; State

Board of Arbitration, William Purcell, Gilbert Robertson, Jr., and Florence F. Donovan; State Factory Inspector, James Connelly. Court of Appeals: Chief-Judge, William C. Ruger; Associate Judges, Charles Andrews, Theodore Miller, Robert Earl, George F. Danforth, Charles A. Rapallo, and Francis M. Finch.

Legislative Session.—The Legislature met on January 5 and adjourned on May 20. The Governor had until June 19 to act on the bills left in his hands. The more important results of the session are given below.

An act was passed amending the civil-service law so that honorably discharged soldiers and sailors of the civil war are to be preferred over civilians, though they may be graded lower, provided they reach the minimum standard; and age and physical disability are not of themselves to disqualify such soldiers and sailors. The sum of \$800,000 was appropriated for deficiency in appropriation for support and maintenance of the several State Prisons, for material and expenses of manufacturing, and for the ordinary repairs of the prisons and supplying water therefor, for the year ending Sept. 30, 1886. Another act provides that no telegraph, telephone, or electric wire attached to or stretched over any building or land shall by lapse of time create any presumption of a grant, or any prescriptive right. It was enacted that all franchises for street railroads in cities and incorporated villages shall be sold at auction to the bidder who will give the largest percentage per annum of the gross receipts. Syraeuse University was empowered to create as departments of the institution a college of theology, a college of medicine, and such other colleges as might be deemed expedient. An amendment to the code of civil procedure permits the Surrogate of New York County to transfer to the Court of Common Pleas any proceeding for the probate of a will. A tax of one eighth of one per cent. upon the amount of the capital stock or increase thereof is levied upon corporations, joint-stock companies, and associations having capital stock divided into shares, for the privilege of organization or increase of capital. Twelve hours' labor in twenty-four, with reasonable time for meals, is made day's labor in the operation of street surface and elevated railroads in cities of over 500,000 inhabitants. No corporation in cities of over 800,000 inhabitants can charge more than \$1.25 per 1,000 cubic feet for illuminating gas. One of the acts of the session creates the office of factory inspector, and provides that no minor under eighteen years of age, nor any woman under twenty-one, shall be employed at labor in any manufacturing establishment in the State for a longer period than sixty hours in any one week, and no child under thirteen shall be employed in any manufacturing establishment. Women were admitted to the practice of law upon the same terms

as men. The statute of limitations in actions for personal injuries against cities of over 50,000 inhabitants was reduced to one year, and notice is required to be served on the corporation counsel within six months. An act was passed to prevent the adulteration of vinegar, and deception in its sale. Imprisonment for debt was further restricted by providing that no person shall be imprisoned within the prison-walls of any jail for a longer period than three months, under an execution or any other mandate against the person for a sum less than \$500, nor more than six months for a greater sum. The following three acts grew out of the discovery of bribery on the part of the Broadway Surface Railroad Company in securing its franchise in the city of New York:

An act to annul and dissolve the Broadway Surface Railroad Company.

An act in relation to the consents of property-owners, order of the General Term confirming reports of commissioners, and the consents of the local authorities, heretofore given to the construction and operation of street surface railroads by companies which have been dissolved or annulled, or whose charters may have been repealed by legislative enactment.

An act to provide for the winding up of corporations which have been annulled and dissolved by legislative enactment.

The second act was intended to preserve and prevent the lapsing of the consents in case of the annulment of a railroad company, and to provide for the sale thereof at public auction by the municipal authorities. The third act requires the Attorney-General, in the name of the State, to bring suit in the Supreme Court to wind up and finally settle the affairs of the dissolved corporation, in which suit a receiver is to be appointed.

The following are other noteworthy acts:

To incorporate the Grant Monument Association.

Providing for commutation of sentences for good behavior of convicts in the prisons and penitentiaries in this State.

To provide for submitting to the people the question, "Shall there be a convention to revise the Constitution and amend the same?"

To incorporate the city of Jamestown.

To incorporate the State Executive Committee of the Young Men's Christian Association of the State of New York.

Enabling the Kings County Pharmaceutical Society to establish a college of pharmacy in the city of Brooklyn, New York.

To empower the board of supervisors of the several counties of the State of New York to vote moneys for the erection, repairing, or remodeling of monuments to the veterans of the late war of the rebellion.

To authorize the veteran soldiers and sailors of the late war, residing in the State of New York, to erect a monument on the Capitol-grounds at Albany, in honor of the women of said State, for their humane and patriotic acts during the war.

For the incorporation of political clubs.

To authorize the appointment of commissioners to locate an asylum for the insane in northerly New York.

To protect life in the running of elevators which carry persons in the city of Brooklyn.

For the protection of the natural oyster-beds located in the waters of the State of New York.

To provide for the establishment of an additional evening high-school for males in the city of New York.

To regulate the practice of veterinary medicine and surgery in the State of New York.

To provide additional accommodations for the insane at the Hudson River State Hospital, and to provide for the construction thereof.

To authorize the formation of gas companies in the city of New York, and to regulate the powers and duties of the same.

To prevent the spread of contagious and infectious diseases.

To provide for the annexation to the city of Brooklyn of the town of New Lots, and for the acquisition and regulation of the water-supply thereof.

To authorize the appointment of a commission to investigate and report to the Legislature the most humane and approved method of carrying into effect the sentence of death in capital cases.

To provide for the amicable adjustment of grievances and disputes that may arise between employers and employés, and to authorize the creation of a State Board of Arbitration.

For the preservation of song and wild birds.

To provide for a course of free instruction in natural history, and making an appropriation for the support thereof.

To create a Prison Labor Reform Commission for the purpose of investigating how best to employ the convicts confined in the several prisons, penitentiaries, and reformatories of this State other than by the contract system, and what improvements in the commitment, custody, and employment, management, and discipline of convicts, should be adopted; and to regulate the employment of convict-labor in the said prisons, penitentiaries, and reformatories pending such investigation.

To facilitate closing up the affairs of insolvent life-insurance and annuity companies.

To create the New York Post-Graduate Medical School and Hospital.

To provide for the care and preservation of the monuments marking the boundary-lines of the State.

To prevent the use of any substitute for hops, or pure extract of hops, in the manufacture of ale or beer, and to preserve the public health.

For a uniform contract or policy of fire insurance to be made and issued by all insurance companies taking fire risks on property within this State.

To provide for the establishment of municipal lodging-houses in the city of New York.

To ratify and confirm the agreement entered into by commissioners on the part of the States of New York and Pennsylvania, in relation to the boundary-line between said States.

To provide for the incorporation of credit guarantee and indemnity companies.

To provide for the revision of the special and local laws affecting public interests in the city of Brooklyn.

For the better preservation of the health of children in institutions.

To provide for the assessment of telegraph, telephone, and electric-light lines.

To encourage the growth of free public libraries and free circulating libraries in the cities of the State.

To provide for the taxation of fire and marine insurance companies.

Finances.—The following was the condition of the treasury, Jan. 1, 1887:

Balance in treasury Oct. 1, 1886.....	\$4,164,288 55
Receipts in October, 1886.....	\$144,642 13
Receipts in November, 1886.....	384,978 84
Receipts in December, 1886.....	324,168 77

803,779 79

Total.....	\$4,968,018 34
Payments in October, 1886.....	\$832,005 97
Payments in November, 1886.....	552,596 84
Payments in December, 1886.....	883,988 99

2,223,531 80

Balance in treasury Jan. 1, 1887.....	\$2,744,486 54
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The receipts for the fiscal year ending Sept. 30, 1886, were in sources and amounts as follow:

State tax.....	\$6,240,870 85
Salt duties.....	63,268 45
Auction duties.....	19,059 81
Peddlers' licenses.....	30 00
Interest on Treasurer's deposits.....	18,720 66
From insurance companies for expenses of Insurance Department.....	107,580 80
Bank Department.....	19,400 82
Game and fish protectors.....	169 57
Stationery sold by Comptroller.....	660 90
Tax on corporations.....	1,876,061 44
Notaries' fees.....	2,986 94
Public administrators.....	7,382 08
Fees, Secretary of State.....	23,025 84
Fees, Comptroller.....	1,211 51
Fees, Clerk Court of Appeals.....	8,057 98
Fees, Railroad Commission.....	60 01
Sales of general-fund land.....	6,878 35
Grants of land under water.....	4,802 28
Forestry Commission, for fines collected for trespass on State lands, etc.....	3,800 62
New Capitol, sale of spawls.....	350 00
Sale of prison-lands.....	2,743 94
War claims.....	18,837 85
Collateral inheritance-tax.....	84,128 92
From telegraph and telephone companies for expenses of the Electrical Subway Commission.....	81,077 00
Contributions from gas-light companies.....	2,548 68
Contributions from railroad companies for expenses of the Railroad Commission.....	64,911 11
Tax on organization of corporations.....	53,600 06
County taxes (arrears, sales, etc.).....	313,059 18
Sing-Sing Prison.....	242,842 50
Auburn Prison.....	385,673 92
Clinton Prison.....	539,890 88
Transfers from other funds.....	801,173 75
Miscellaneous.....	88,101 87
Total receipts in general fund.....	\$9,799,215 97

Common-school fund.....

283,916 23

College land-scrip fund.....

19,390 81

Literature fund.....

45,189 02

Military record fund.....

2,532 54

United States deposit fund.....

814,990 81

Free-school fund.....

8,102,776 89

Canal fund.....

2,509,687 76

Total receipts.....

\$16,077,809 58

The receipts of the free-school fund were nearly all from taxes. Of the canal fund receipts, the sum of \$1,668,060.26 was from taxes. The receipts from the tax on corporations were thus divided:

Insurance companies.....	\$141,496 86
Railroads.....	730,359 11
Steamboats.....	40,511 24
Telegraph and telephones.....	189,964 75
Gas and mining companies.....	83,419 20
Miscellaneous corporations.....	121,879 15
Bank agencies.....	63,990 39

Total.....

\$1,976,061 44

The payments from the several funds for the same fiscal year were in purpose and amounts as follow:

General fund.....	\$8,418,210 22
Common-school fund.....	251,963 77
Free-school fund.....	8,057,610 08
Literature fund.....	44,625 39
United States deposit fund.....	801,699 88
College land-scrip fund.....	19,731 80
Military record fund.....	1,162 50
Canal fund.....	2,394,801 52

Total payments.....

\$14,489,805 11

Valuing investments at par, the capital of the more important trust funds, Sept. 30, 1886, was:

FUND.	Securities.	Money in the treasury.	Total.
Common-school fund	\$3,865,751 83	\$39,906 06	\$3,905,657 89
United States deposit fund	3,962,038 00	55,187 71	4,017,220 71
Literature fund	271,600 00	380 76	271,980 76
College land scrip fund	415,400 00	59,009 12	474,409 12
Total	\$8,514,784 83	\$154,483 65	\$8,669,267 98
The capital of the same funds, Sept. 30, 1885, was	\$8,568,956 42	\$75,811 56	\$8,644,267 98

The canal debt sinking-fund (in which, on Sept. 30, 1886, were contained securities and cash to the amount of \$5,051,073.82) is not included among the trust funds of the State. The total amount held by the Comptroller for the principal funds is \$13,695,341.80.

For the year 1886-'87 the State tax is \$9,512,-812.91 (the rate being $2\frac{5}{16}$ mills, and the valuation \$3,224,682,343) as follows:

School purposes	\$3,708,984 69
Canals, including canal debt	2,192,784 00
General purposes	3,611,044 22
Total	\$9,512,512 91

The direct school-tax for the last fiscal year produced \$3,094,731.46. The total expenditure by the State for educational purposes was \$3,541,216.22. The expenditure, State and local, for public schools was \$13,986,834.08.

Setting aside the general fund debt for Indian annuities, the principal of which amounts to but \$122,694.87, the State debt amounts to \$9,204,510, of which sum \$900,000 is the amount remaining of the debt created to provide for the payment of the Niagara Reservation awards, of which debt \$100,000 matures annually. The remaining \$8,304,510 is the canal debt, the last of which matures in October, 1893, and which was reduced during the year 1885-'86 by purchase and cancellation, \$34,650. During the year 1886-'87 \$1,562,-900 of this debt falls due.

The sinking-fund, Sept. 30, 1885, was \$4,663,188 61
The sinking fund, Sept. 30, 1886, was 5,051,073 82

Increase of sinking-fund during the year.. \$887,885 21

The investments for the canal debt sinking fund on Sept. 30, 1885, amounted to \$4,205,-000, and on Sept. 30, 1886, to \$4,454,000.

The following is a schedule of the institutions in aid, or for the support of which payments were made from the State Treasury during the year ending Sept. 30, 1886, with the amounts paid for each:

INSTITUTION.	Support.	Buildings.
Deaf and dumb	\$221,602 10	.....
Blind	87,380 50	\$2,000 00
Insane	66,528 28	251,295 85
Idiots	77,000 00	41,102 40
Juvenile delinquents and Houses of Refuge	188,333 33	104,632 00
State Reformatory at Elmira	30,000 00	157,827 56
State Soldiers' and Sailors' Home	106,000 00	.....
Thomas Asylum	10,750 00	.....
Total	\$787,589 21	\$556,857 81

In 1886 the town taxes amounted to \$12,-795,508.69; county taxes, \$35,801,757.86; 1 $\frac{1}{2}$ mill school tax, \$3,708,384.69; 1 $\frac{1}{8}$ mill State tax, \$5,804,428.22; total, \$58,110,078.96; rate of tax on one dollar of valuation, 1 $\frac{1}{8}$ per cent.

For purposes of State taxation, the local assessments come annually before the State Board of Equalization for adjustment. On this board New York city has no representative, and it has long been charged that that municipality suffers from its action in unduly raising values in that city and lowering them in the rural counties. The following table gives the equalized values by counties for 1885 and 1886, and the action of the board in the latter year:

COUNTIES.	1885.		1886.	
	Total equalized value of real and personal estate.	Amount deducted from or added to assessed value of real estate.	Total equalized real and personal.	real estate.
Albany	\$8,113,190	d 9,670,797	\$8,447,408	
Allegany	13,552,491	d 1,737,882	14,058,416	
Broome	19,078,180	d 9,096,070	20,704,658	
Cattaraugus	15,044,136	d 7,449,950	15,481,287	
Cayuga	29,178,262	d 1,455,418	29,962,070	
Chautauqua	28,811,958	d 2,461,413	24,790,595	
Chemung	16,697,754	d 1,814,951	17,952,640	
Chenango	16,907,754	d 788,202	17,475,054	
Columbia	9,206,427	1,170,470	9,669,514	
Cortland	28,257,755	2,922,861	29,475,673	
Dutchess	10,244,075	d 1,07,470	10,759,816	
Erie	12,891,891	d 378,586	13,465,707	
Essex	43,809,577	d 808,089	43,079,008	
Franklin	10,013,296	d 1,029,004	10,391,808	
Fulton	7,663,366	d 658,622	7,982,170	
Genesee	7,875,310	d 2,290,321	8,085,189	
Greene	19,048,438	d 2,483,200	20,621,659	
Hamilton	18,050,053	d 2,173,659	18,447,188	
Herkimer	1,085,873	d 62,686	1,137,290	
Jefferson	21,387,088	d 1,676,589	22,773,555	
Kings	22,219,110	d 8,934,675	23,106,977	
Lewis	8,412,081	d 1,402,284	8,783,160	
Livingston	22,759,608	d 2,827,290	24,879,752	
Madison	18,494,926	d 792,489	19,120,995	
Monroe	72,823,543	d 2,299,647	80,820,545	
Montgomery	21,258,109	d 8,881,731	22,219,177	
New York	1,413,415,020	d 99,973,926	1,490,226,250	
Niagara	24,124,039	d 4,736,441	25,288,582	
Oneida	52,810,669	d 3,788,657	56,861,423	
Onondaga	56,866,091	d 13,587,198	60,448,103	
Ontario	26,489,878	d 6,650,994	25,412,252	
Orange	40,385,987	d 4,711,369	41,497,366	
Orleans	18,792,206	d 8,143,758	14,855,745	
Oswego	21,526,179	d 3,162,238	22,429,140	
Otsego	20,192,896	d 8,235,324	12,555,084	
Putnam	7,121,354	d 815,044	7,392,815	
Queens	40,057,331	d 12,585,420	42,505,599	
Rensselaer	47,718,282	d 20,025,352	59,711,637	
Richmond	11,108,862	d 2,412,781	11,685,130	
Rockland	12,818,627	d 2,354,493	13,851,050	
Saratoga	20,901,521	d 1,051,387	22,376,691	
Schenectady	11,871,638	d 1,902,771	12,323,506	
Schoharie	9,297,428	d 5,638,026	10,012,187	
Schuyler	6,490,656	d 869,555	6,764,065	
Seneca	14,028,684	d 2,493,615	14,765,500	
St. Lawrence	21,958,033	d 8,546,450	23,106,463	
Steuben	20,261,769	d 7,127,320	21,915,714	
Suffolk	16,242,574	d 1,25,696	16,885,971	
Sullivan	5,111,860	d 271,856	5,327,325	
Tioga	10,955,804	d 1,812,718	11,688,450	
Tompkins	18,936,212	d 3,779,717	15,057,419	
Ulster	22,908,334	d 1,279,477	24,563,346	
Warren	6,281,479	d 1,567,311	6,499,028	
Washington	21,196,530	d 4,022,702	22,127,340	
Wayne	23,851,268	d 3,603,706	24,776,811	
Westchester	75,616,380	d 16,948,664	79,273,492	
Wyoming	13,727,689	d 209,883	14,384,858	
Yates	11,528,768	d 1,644,717	12,859,828	
Total	\$3,094,731,457	.....	\$3,224,682,343	
	a. Added.		d. Deducted.	

The following is the salary account of the State:

SALARIES PAID WHOLLY BY STATE AT MONTHLY AND ANNUAL RATES.

OBJECT.	Number.	Amount.
Judiciary.....	62	\$422,500 00
Legislature.....	286	383,660 00
Administrative (except Department of Public Works).....	532	764,672 90
National Guard.....	27	35,590 00
State Prisons.....	253	239,715 00
Normal schools and teachers' institutes.....	142	144,774 00
Charitable institutions.....	568	253,905 60
Department of Public Works.....	65	71,920 00
Department of Public Works (during navigation).....	1,002	261,555 00
School Commissioners.....	112	112,000 00
Total	3,049	\$2,640,595 50
Salaries paid partly by State, charitable institutions.....	1,358	427,555 79
Salaries paid wholly by State at <i>per diem</i> allowance, which can only be estimated—say.....	300	150,000 00
Total	4,707	\$3,218,451 29

Education.—The report of the Superintendent of Public Instruction covers the school year ending Aug. 20, 1886. The aggregate amount of public moneys expended for the purposes of education, under the general supervision of the department, was \$13,986,834.08. The sum paid directly for common schools was \$13,284,986.64, of which sum \$7,878,597.30 was expended in the cities, and \$5,406,389.34 in the towns. The aggregate valuation of school-houses and sites was \$35,662,085; of this valuation \$23,508,511 was located in the cities, and \$12,153,573 in the towns. The average value of school-houses and sites in the cities was \$47,878.63, and in the towns \$1,052.80. There was paid for teachers' wages, \$9,102,268.77; for libraries, \$40,509.25; for apparatus, \$310,162.85; for new buildings, sites, repairs, etc., \$2,276,455.38. The total number of volumes in district libraries is 734,506. The number of school districts in the State, exclusive of cities, is 11,262. The number of teachers employed at any time during the year was 31,325, and the number employed for terms of 28 weeks or more was 22,240. Of the whole number of teachers employed, 5,952 were males and 25,373 were females. The average annual salary of teachers was \$701.31 in the cities, and \$261.66 in the towns. The number of children of school age (between five and twenty-one years) was 1,735,073. There are 132,803 more children of school age resident in the cities than in the towns of the State. The number who attended the public schools at some time during the year was 1,027,767. The average daily attendance was 625,813. The whole number instructed in the common schools, normal schools, academies, colleges, private schools, law-schools, and medical schools, was 1,212,327. There are 11,940 public school-houses, of which 62 are log, 370 stone, 1,409 brick, and 10,099 frame. The average number of weeks' school taught, in the cities was 39.7, and in the towns 33.6 weeks.

The amount paid for teachers' wages is greater than ever before by the sum of \$339,318.54. In 1870 the average salary paid teachers was \$872.58; in 1880, it was \$369.56; in 1886, \$409.27. The aggregate valuation of school property is greater than ever before by the sum of \$2,314,503. The actual expense of maintaining the common schools is \$181,381.53 less than in the preceding year. The appropriation to common schools made by the Legislature in 1886 being \$500,000 larger than ever before, the allotments to districts will be correspondingly increased. The "district quota" for 1887 is \$76.08 as against \$66.12 in 1886, and \$44.94 in 1885.

It seems that 59 per cent. of the school population attended the public schools at some time during the year; in 1880, it was 62 per cent., and in 1870, it was 69 per cent. The average attendance, taking the entire year together, was 36 per cent. of the children of school age; in 1880 it was 35 per cent., and in 1870 32 per cent.

The decline in proportionate attendance is probably to be attributed to the increased attendance in private and parochial schools.

There are nine normal schools in the State, employing 128 teachers, with a total enrollment in all departments of 5,608. The enrollment in the normal departments was 2,778. The number of graduates in the normal departments was 364. There was paid from the free-school fund for the maintenance of these schools for the year ending Sept. 30, 1886, the sum of \$158,639.81, and there was paid from the general fund, for additions and improvements to buildings, the sum of \$95,182.09. The tuition fees received in the several schools from pupils in the academic and practice departments amounted to the sum of \$11,109.80.

The new normal school at New Paltz began operations in February. The present enrollment in the normal, academic, and practice departments is 152. The addition to the building at Potsdam has been completed; the addition at Genesee is in progress. The Buffalo building has been repaired, and repairs have also been made at Oswego and Cortland.

The tables show that 77 teachers' institutes were held during the year, at which about 17,500 teachers were registered. Institutes were held in every county of the State with the exception of New York and Hamilton.

Pursuant to the provisions of the act of 1886, an agreement was entered into in June with the American Museum of Natural History, at Eighth Avenue and Seventy-seventh Street in the city of New York, for supplying to teachers in the public schools of New York and Brooklyn, and to the Normal College in the city of New York, the Teachers' Training School in Brooklyn and to all the normal schools in the State, courses of instruction illustrated by the stereopticon process, on human and comparative anatomy, physiology, zoölogy, physical geography, and other subjects.

There were 136 deaf and dumb pupils appointed by the department to the seven institutions to which the law authorizes appointments to be made, during the year. The total number of State pupils instructed in such institutions during the whole or a part of the year was 991, for which the State paid the sum of \$220,529.79. There were 32 pupils appointed to the New York Institution for the Blind during the year. The whole number of State pupils instructed in this institution in the course of the year was 230, for which the State paid the sum of \$48,769.45.

There are seven Indian reservations in the State. The Indian children of school age number 1,711. There are 29 schools, employing 31 teachers. The whole number of pupils enrolled during the year was 1,061, and the average daily attendance was 493. During the last fiscal year the maintenance of these schools cost \$9,122.33. New school-houses were erected upon the Onondaga Reservation, and at Red Bank on the Allegany and Cattaraugus Reservation.

Relative to the Indians of the State the superintendent says: "The qualities which civilization has admired in the primitive Indian are not found in such of his descendants as are committed to our care. Supple sinews and athletic vigor they know nothing of. Our reservations very generally embrace lands as fertile as any in the State, and yet these people lack the energy to gain a respectable subsistence. As would be the case among any other people under like conditions, they are very commonly devoid of moral sensibilities. There is no law upon the reservations, and they are subject to no authority. The system of reservations should be abandoned. The lands should be divided among the Indians and conveyed to them, to be inalienable for a period of twenty or twenty-five years. They should be made citizens, and given the privileges and charged with the obligations and responsibilities which go with citizenship."

The statistics of colleges for 1884-'85 show 45 institutions with 784 teachers, 11,072 students and 1,571 graduates during the year. The total value of property is \$23,161,602.82, and the yearly expense is \$1,787,391.57. There are 283 academies and academic departments of union schools.

Public Charities.—The returns of the various charitable, correctional, and other institutions of the State, subject to the visitation of the State Board of Charities, are given for the year ending Sept. 30, 1886. The property held by these institutions Oct. 1, 1886, was valued at \$52,138,192.45, as against \$49,297,035.97, the appraised value, Oct. 1, 1885, as follows: By the State, \$10,681,897.02; by counties, \$2,654,847.86; by cities, \$4,348,500; by incorporated benevolent associations, \$34,453,447.57. Their indebtedness at the same time was \$3,161,994.81, thus making their net valuation \$48,976,197.64. Contrasted with 1885, the valuation shows an increase as follows: In the State in-

stitutions, \$237,959.88; in the county institutions, \$60,584.88; in the incorporated benevolent institutions, \$2,543,112.27; total, \$2,841,656.48. The valuation of the city institutions was reported the same as Oct. 1, 1885.

The total receipts of these institutions for the year ending Sept. 30, 1886, were \$18,362,659.61, as against \$12,453,311.04, the receipts for the last fiscal year, or an increase of \$909,348.57.

The entire expenditures of these institutions for the year ending Sept. 30, 1886, footed up \$12,027,990.01, as against \$11,588,739.86, an increase of \$489,250.15 over the expenditures for the last fiscal year.

The number of persons in the care of these various institutions Oct. 1, 1886, was 63,335, as against 60,394 Oct. 1, 1885, or an increase of 2,941. The following is a classification of the condition of these persons: Insane, 18,538; idiotic and feeble-minded, 1,174; epileptic, 417; blind, 679; deaf and dumb, 1,366; orphan and dependent children, 20,949; juvenile delinquents and offenders, 4,436; adult reformatory prisoners, 711; disabled soldiers and sailors, 936; hospital patients, 3,384; adult, aged, and infirm persons in incorporated homes and asylums, 6,251; poor-house and almshouse-inmates other than insane, idiotic and feeble-minded, blind, deaf and dumb, and epileptic, 9,494. In addition to these in-door beneficiaries, the dispensaries extended medical and surgical aid to 349,619 out-door patients during the year, and 49,144 persons were temporarily relieved at their homes by various city and county officials, from the public funds, involving an expenditure of \$627,267.12.

The records show that the number of State paupers committed to the custody of the board in poor-houses and almshouses of the State, under the act of 1873, to Oct. 1, 1886, a period of thirteen years, has been 16,309, or an average of over 1,250 a year; and the number of these removed by the board to their homes or places of legal settlement in other States and countries, from which they had drifted or been sent into this State, has been 9,799.

The whole number of lunatic and otherwise infirm alien paupers removed by the Board from the poor-houses, almshouses, and other institutions of this State and sent to their homes in different countries of Europe, under the act of 1880, to Oct. 1, 1886, from which they had been shipped to this country and unlawfully permitted to land, has been 623.

The State hospitals for the acute insane are at Utica, Poughkeepsie, Middletown, and Buffalo; the State asylums for the chronic insane are the Willard and Binghamton.

The State has founded two institutions for the feeble-minded, both of which are maintained by annual appropriations—viz., the New York Asylum for Idiots at Syracuse, and the State Custodian Asylum for Feeble-minded Women at Newark. The former is devoted to the education and training of teachable idiotic

children of both sexes, and the latter to the care of feeble-minded girls and young women, heretofore provided for in poor-houses and almshouses. The New York City Almshouse has a department for idiotic and feeble-minded of both sexes, with an average of about 290 inmates, but there is no other local provision, except in poor-houses, for these classes in the State.

The institutions for the blind are two, in New York city and Batavia. Those for the deaf and dumb are: New York Institution for the Deaf and Dumb, New York city; Institution for the Improved Instruction of the Deaf and Dumb, New York city; Central New York Institution for Deaf-Mutes, Rome; Le Conteulx St. Mary's Deaf and Dumb Asylum, Buffalo; St. Joseph's Institution for the Improved Instruction of Deaf-Mutes, Fordham; Western New York Institution for Deaf-Mutes, Rochester; Northern New York Institution for Deaf-Mutes, Malone.

The New York State Reformatory is at Elmira; the Refuge for Women at Hudson.

The juvenile reformatories are: New York House of Refuge, Randall's Island; State Industrial School, Rochester; New York Juvenile Asylum, New York; New York Catholic Protectory, West Farms; Buffalo Catholic Protectory, Limestone Hill.

There are 203 orphan asylums and homes for the friendless reporting to the State Board of Charities. There are 41 dispensaries, chiefly in the cities. The number of incorporated hospitals in the State under the control of benevolent organizations is 60, of which 10 are for specific diseases, and 50 are general.

State Prisons.—The superintendent, in his report for the year ending Sept. 30, 1886, remarks: "The transactions of the State prisons during the last year are without precedent. The embarrassments which perplexed the superintendent and the warden of one of the prisons in the preceding year, arising from their inability to put a large body of prisoners at work, have been continued during the whole year. This situation is the result of the non-action of the Legislature to meet by effective legislation the grave exigency which it was fully informed during its session existed in the State Prisons, and for which there was then, as there is now, no practical and adequate remedy except in new legislation. One feature in the affairs of these institutions is the marked increase in the total number of prisoners. The population of the three prisons was 3,155 on Sept. 30, 1886. This is an increase of 194, or a fraction above 6 per cent. And this fact should be noted, that the number of prisoners in the three prisons is now the largest since the present superintendent has been in office. The present population exceeds the minimum during that period, which was reported in 1883 by 327, or over 11 per cent."

The number of convicts, September 30, at Auburn was at 1,084; at Clinton, 539; at Sing Sing, 1,532.

An increase in numbers so great as this ought to become manifest in two ways in the report of the prisons: one is an increase in the expenditure on account of maintenance and support; the other is in the earnings of the prisoners. The superintendent believes that the officers in charge of the several State Prisons are fairly entitled to the credit of faithful stewards. The sum spent by them for the care and maintenance of the institutions during the fiscal year rose above that of the previous one only \$888.72, and the previous year was the most favorable one in this respect in ten years. The gain on this side of State-Prison business is unchecked and is satisfactory, for the very small increase in the expenditures last year is much more than offset by the increase in the prison population; so that, on a per capita computation, the last year is unsurpassed in economy. The prison expenses during ten years are shown in the following table, to wit:

YEARS.	Expenses.	Deficit.	Surplus.
1877.....	\$625,783 44	\$317,411 06	.....
1878.....	429,599 76	67,800 45	.....
1879.....	422,737 97	20,374 18	.....
1880.....	404,998 18	18,086 98	.....
1881.....	408,791 66	.....	\$564 35
1882.....	415,660 10	.....	6,257 58
1883.....	897,955 35	.....	9,106 28
1884.....	890,501 22	.....	10,657 79
1885.....	873,222 53	.....	8,441 44
1886.....	874,111 65	.....	8,619 87
Total deficit in first four years.....			\$428,672 67
Aggregate surplus in last six years.....			88,647 44

During the past six years the prisons have paid their way; and "but for the disorganization of prison industries and the persistent neglect of the Legislature to deal with the question in an intelligent and effective way," says the superintendent, "much more satisfactory financial results would have been reached in the past two years, with even better moral and reformatory effects than have been accomplished."

For the past fiscal year the earnings and expenditures for the care and maintenance of the several State Prisons are as follow:

AUBURN.	
Miscellaneous and contract earnings.....	\$12,473 21
Boot and shoe State-account industry, surplus.....	81,629 18
Total earnings.....	\$44,102 39
Expenditures for care and maintenance.....	124,598 78
Deficiency.....	\$80,491 34
CLINTON.	
Miscellaneous and contract earnings.....	\$3,800 10
Clothing State-account industry, surplus.....	88,287 47
Total earnings.....	\$91,587 57
Expenditures for care and maintenance.....	82,542 58
Surplus.....	\$9,044 99
SING SING.	
Miscellaneous and contract earnings.....	\$242,041 56
Expenditures for care and maintenance.....	166,975 84
Surplus.....	\$75,066 22
Surplus earnings for the year.....	\$3,619 87
Surplus earnings for 1884-'85.....	8,441 44
Increase in surplus earnings.....	\$178 48

"The above financial statement," says the superintendent, "will not agree with the prison account reported by the Comptroller. But the discrepancy is apparent, not real. The prison account reported by the prisons embraces the bills carried on the books of the two prisons which are working on State-account industries, plus the amount of stock, material, and machinery on hand for which payment has been made. The Comptroller debits these prisons with the cash advances paid to them, while he does not credit them with the bills receivable on account of products sold, or for the inventory of goods on hand. The Comptroller's statement is correct, but is not complete. It is the cash account, not the full balance-sheet."

The deficit at Auburn was caused wholly by the non-employment of men able to work.

Railroads.—The fourth annual report of the Board of Railroad Commissioners presents interesting facts. At the close of the year covered by the last annual report the business depression of railroads had about reached its lowest point. The tide then turned, and has been steadily rising since, keeping on a level with the general commercial activity throughout the country.

Perhaps the most important and significant fact of the year is the largely increased shipments by canal. This has been the result of two causes: First, the rise in price of transportation by rail, making water competition both possible and profitable; and, second, the large increase in the quantity of grain shipped to the seaboard. The trunk lines carried but 152,297 tons of through freight during the season of navigation in excess of that carried last year, but the increased rates have made it profitable. The canals, however, carried 5,292,982 tons as compared with 4,731,784 tons in 1885. The Welland Canal carried an increase of 34 per cent., a significant fact as affecting the commerce of the United States. A few of the most important results are given, as follow:

ITEMS.	1886.	1885.
Gross earnings from operation of roads	\$125,160,289 45	\$111,632,961 47
Operating expenses.....	79,260,798 80	77,175,826 01
Net earnings from operation of roads.....	45,899,491 18	84,457,135 46
Surplus or deficit.....	4,653,191 48	Deficit, 8,502,887 71
Percentage of net income to capital stock.....	02 60	01 09
Percentage of dividends declared to capital stock.....	01 88	01 60
Miles of road built in New York State.....	7,342 19	7,811 40
Tons of freight carried one mile.....	10,640,849,655	9,902,688,295
Increase in 1886 of 07 46 per cent.....		
Average freight profit per ton per mile.....	0 29	0 21
Passenger carried one mile (exclusive of elevated roads).....	1,830,734,684	1,884,580,425
Average passenger earnings per passenger per mile (cts.)	2 3	2 1

In the course of the year, 503 persons were killed on the railroads of the State and 1,138

injured. Of the killed, 299 were run down while walking on the track, and the deaths of 340 were due to "their own misconduct or in-caution."

Canals.—The total canal tonnage during the season of navigation aggregated 5,293,982 tons, or 562,198 tons more than was carried by the canals last year. The rate of freight increased in a still greater proportion, it having averaged 23 of a cent per ton per mile last year, and 34 of a cent per ton per mile this year. The business of the New York Central and Erie Railroads, which are competitive to the canals, also increased in quantity and value, but not so much as that of the canals. The canals were opened on May 1, and closed on Dec. 1, 1886. There were no serious breaks on any of the canals during the year. Owing to the absence of any considerable drought during the past season, there was no detention on account of insufficiency in the supply of water to the canals.

The following table shows the total cost for construction, maintenance, and operation of the several State canals and their total revenues, from their inception to Sept. 30, 1886:

CANALS.	Total cost of construction, maintenance, and operation.	Total revenues from all sources.
Erie and Champlain Canals	\$95,040,407 68	\$130,930,995 87
Oswego Canal.....	8,082,245 08	8,717,906 98
Cayuga and Seneca Canal.....	8,017,161 60	1,054,800 15
Black River Canal.....	5,645,528 75	805,525 54
Genesee Valley Canal.....	9,569,948 62	859,612 80
Chemung Canal.....	8,429,252 41	525,425 97
Chenango Canal.....	6,886,280 89	740,717 06
Oneida River Improvement.....	263,342 80	217,061 84
Oneida Lake Canal.....	580,626 05	65,188 47
Baldwinsville Canal.....	89,519 94	1,261 48
Crooked Lake Canal.....	82,171 18	48,352 71
Total.....	\$188,874,484 74	\$188,468,845 82

This statement of cost does not include the sums paid for interest on canal loans, which have been supplied by surplus canal revenues and taxation. There has been raised by direct taxes for canals, \$46,460,327.53; by indirect taxes, \$5,721,007.10; total, \$52,181,333.63. The canal revenues have been applied to general purposes of the State government to the extent of \$18,835,411.94, leaving of State revenues applied to canals, \$33,330,922.69. Sept. 30, 1886, there remained of canal debt, less sinking-fund, \$3,253,436.18; leaving net loss through the canals, \$36,584,358.87.

Canal Convention.—A convention of friends of the canal system of the State was held at Syracuse, on August 25, under the auspices of the Canal Union. The results of the meeting were embodied in the following preamble and resolutions:

Whereas, The people of the State of New York have, by the Constitution adopted by a decisive majority, in 1882, forever prohibited the Legislature of this State from selling, leasing, or otherwise disposing of the Erie Canal, the Oswego Canal, the Champlain Canal, the Cayuga and Seneca Canal, or the Black River Canal, and declaring that they shall remain the property of the State and under its management for-

ever, have fully committed themselves to the preservation and maintenance of those canals specifically mentioned therein; and,

Whereas, The canals are as indispensable now to enable the State of New York to maintain its proud position as the Empire State of the Union, and the city of New York as the commercial metropolis of the continent, as the canals in the beginning were chiefly instrumental in enabling them to occupy those positions respectively: Therefore,

Resolved, That it is the duty of the State to immediately put these canals, specified in the constitutional amendments, in the highest possible condition of efficiency to enable the State to derive all the benefits they are capable of conferring.

That the Erie Canal is an absolute necessity for the retention and control by the State of New York of the vast domestic commerce of the country, and we demand that this canal be enlarged and improved to make fully available the last drop of water that the skill of modern engineering can supply to enable the passage through it of boats of the largest possible capacity; that we approve of the policy initiated by the Legislature last winter in lengthening the locks of the said canal, and otherwise enlarging its carrying capacity.

That the Oswego Canal, forming an essential part of the canal system of the State, should also be improved by increasing the capacity of its locks and the depth of its channel, as proposed by the initiative legislation of last winter and the recommendation of Hon. Horatio Seymour.

That the Champlain Canal, forming a link in the great channel of water-communication between the Dominion of Canada and Hudson river, and the ironore deposit along Lake Champlain and the furnaces of the cities of the States of New York, New Jersey, and Pennsylvania, should be deepened in its channel so that boats can pass through it carrying the same tonnage that they do on the lakes and on the river, requiring a uniform depth of seven feet.

That we recognize the importance of the Black River Cahal as a part of the canal system of the State, and recommend the enlargement of its locks and deepening of its channel, to enable it to retain the carrying of the products of the forest and of the mines of the section through which it passes.

That the Legislature of this State be earnestly requested to make an appropriation sufficient to complete the construction of the dam at Forestport, in the county of Oneida, in conformity with the recommendations of all the Commissioners of Public Works and State Engineers.

That the sum of \$128,000, now in the State Treasury, the balance of unexpended appropriations for the Erie Canal, should be reappropriated for the purpose of bottoming them out and restoring them to the original capacity of their respective prisms.

That we protest against the passage of the bill which seeks to give away any part of Albany basin to adjacent owners, and request that the basin be kept for the purposes for which it was originally designed, and that adequate appropriations should be made to restore it to its former usefulness, with proper restrictions.

That we reaffirm the recommendation as to the system of assessment and taxation adopted at the last annual convention of the Union.

It was also resolved, as the sense of the convention, that the Legislature, at its next session, appropriate at least \$500,000 for the improvement of the canals on the Seymour plan, and that the secretaries of the convention be directed to ascertain, by letter, the views of all nominees for the Assembly upon the making of such an appropriation, to the end that it may be made an issue at the polls.

Banks and Trust Companies.—On Oct. 1, 1886, the number of State banks of deposit and discount in operation was 95. At the beginning of the preceding year the number was 92. The increase during the fiscal year in the aggregate resources of the banks was \$11,579,775; the increase in loans and discounts during the same period was \$12,611,582, and in deposits \$13,642,634. The increase in surplus and undivided profits was \$1,083,492. The net decrease in amount of capital employed was \$255,000, and in amount due from directors of the several banks, \$172,941. The decrease in overdrafts during the year was \$40,845. The total of overdrafts on Sept. 18, 1886, was but \$51,432. The reduction in amount of specie on hand was \$755,915; during the year the amount of United States and national-bank notes on hand was reduced \$1,861,375. The number of banks reporting was increased by three during the fiscal year. During the past fiscal year no bank operated under the State banking laws has failed. The Seaboard Bank of New York city changed from the State to the national system,

On Oct. 1, 1886, there were twenty trust, loan, mortgage, security, guarantee, or indemnity companies or associations, in existence in the State. Of these, fifteen were in New York city.

The increase during the year in bonds and mortgages was \$1,109,502.37; in stock investments, \$1,202,162.74; and in the amount loaned on collaterals, \$33,690,576.84. The increase for the year in loans on personal securities, including bills purchased, was \$1,404,695.18; in amount of capital invested, \$1,058,050, resulting from the American Loan and Trust Company increasing its capital stock from \$500,000 to \$1,000,000, and the Title, Guarantee, and Trust Company from \$175,900 to \$738,950. The increase in deposits during the same period was \$21,783,267.76. The net increase in assets during the year was \$24,142,926.43. On July 1, 1886, the excess of assets over liabilities (including surplus fund and undivided profits) was \$16,834,485.88, being an increase of \$2,238,795.96 for the year. On Oct. 1, 1886, the aggregate amount of securities held by the superintendent, for banks, individual bankers, and trust companies, was \$1,459,829.98.

There were sixteen corporations for the safe-keeping and guaranteeing of personal property, engaged in active business under the State laws on Oct. 1, 1886, with an aggregate capital of \$2,810,900.

The aggregate resources of the savings-banks, State banks of deposit and discount, trust companies and safe-deposit companies, amount to \$963,759,793. This is an increase of over \$283,000,000 in the past five years. There are thirty-one counties of the State in which there are no savings-banks. The total number of active banks in the other counties is 115. The total resources of the savings-banks of the

State, Jan. 1, 1887, were \$568,276,867. Jan. 1, 1886, they were \$534,536,633, a net increase for the year of \$33,740,234. The growth of the savings institutions of the State is shown by a comparison with their reports made for 1870. On Jan. 1, 1871, the aggregate resources of the savings-banks then in existence were \$245,091,177; the increase in the resources of the banks during the last sixteen years has been \$323,185,690, more than 131 per cent. of the total resources of the savings-banks of the State Jan. 1, 1871, on which date 147 savings-banks were in existence. Estimating the stock investments and real estate held by savings-banks Jan. 1, 1887, at market values, the surplus of the banks on that date was \$85,-623,329. At the beginning of the preceding year it was \$77,282,889. The dividends or interest of depositors of savings-banks for 1886 amounted to \$15,777,022. The amount due depositors on Jan. 1, 1886, was \$457,050,250. On Jan. 1, 1885, it was \$437,107,501, an increase during the year of \$19,942,749, against \$6,027,491 for the preceding year.

Insurance Companies.—At the close of 1886 the fire, fire-marine, and marine insurance companies doing business in the State were possessed of \$227,848,545 of admitted assets, not including assets held abroad, or premium notes of mutual companies, a gain of \$15,007,124, as compared with 1885. The liabilities of these companies, excepting scrip and capital, were \$85,-402,054, which was an increase of \$4,779,963 over the return of the preceding year. The income was \$108,939,665, and the expenditures were \$98,423,011, an increase, as compared with 1885, of \$4,277,169 in income, and \$1,-782,532 in expenditures. The whole number of companies reporting in 1886 was 186, being 10 more than reported in 1885.

At the close of 1885 there were twelve life-insurance companies in operation, organized under the laws of the State; aggregate capital, \$1,915,000; number of policy-holders, 97,-085; total premiums during the year, \$10,520,-000; other income, not including rents, \$6,591,-869; outstanding risks, \$253,437,000. The Comptroller urges some measure of taxation for these companies in the following terms: "There is no form of business in which such great aggregations of capital have been so rapidly accumulated; yet to the present day they have paid no tax whatever directly to the State Treasury. Upon the great mass of their property they pay no county tax or town tax, or any form of tax. I do not refer to fidelity companies or casualty companies, or to co-operative associations or organizations. The business corporations organized under the laws of New York, and engaged in life insurance in this State, held over \$287,-000,000 of assets on Dec. 31, 1885. Those assets increased by the sum of \$22,000,000 during the year 1885. The aggregate income of such companies in 1885 was \$64,000,000. The New York companies had accumulated,

on Jan. 1, 1886, over and above the reserve required by law, surplus funds of \$51,000,000. Surely, this sum ought not to be untaxed."

Temperance.—A State Convention of Anti-Saloon Republicans was held at Binghamton on September 7, for the purpose of choosing delegates to the National Convention at Chicago and adopting a platform of principles. The following is the platform adopted:

We, temperance Republicans of the State of New York, in convention assembled, do make this declaration of our position and our convictions:

1. We believe that the traffic in intoxicating liquors is the source of a greater amount of misery, vice, and crime than any other agency of evil in modern times, and that the influence of the saloon in politics is a chief cause of demoralization and corruption; and we, therefore, hold that it is the supreme duty of the State to adopt such practical measures as shall abolish the sale of liquors as a beverage, and sweep away the saloon altogether.

2. History has proved that the only efficient sources of political power are the two great established parties, and there is no case on record where any reform has been accomplished by a separate party organized for that purpose, except as it combined with others; we therefore demand of the Republican party, to which we are proud to acknowledge allegiance, that it shall take a firm and decided stand in favor of temperance and against the saloon, and that when in power it shall adopt and enforce measures for the restriction, and at the earliest possible moment for the prohibition, of the liquor-traffic.

3. The fundamental principle of our governmental system is that the people shall rule. It has also been demonstrated by experience that prohibitory measures can only be enforced when public sentiment upholds them. We, therefore, declare, as our opinion, that the best method of dealing with the liquor-traffic is to let the public decide the question whether it shall be permitted or prohibited, by the submission of a constitutional amendment in the whole State, and by local option in the several parts of the same.

4. We pledge ourselves as Republicans to do our utmost to cause the party to plant itself squarely and boldly upon a platform favoring the submission and adoption by the people of a constitutional provision which shall outlaw the saloon and prohibit the manufacture of the intoxicating beverages in which it deals, and to enforce, rigidly, the popular will when it shall have been expressed. And we call upon all temperance men, and all friends of humanity, of whatsoever party or name, to join us in securing these objects.

5. As the Republican party has, therefore, achieved its great success by its advocacy of high moral principle, and with the help of the moral and intellectual forces represented in the churches, schools, and colleges of our country, we believe that it will win in the future by the same honorable course and by allying with itself the same elements which have been and are the secrets of its power and the hope of its existence.

Resolved, As the sense of this convention, that in the nomination of a candidate for Judge of the Court of Appeals, the only State officer to be chosen at the ensuing election, expression should be given to the pervading sentiment of the Republican party in favor of temperance reform, in the person of the candidates; that, as the State Committee decided to make a nomination without calling a State Convention, thereby rendering such expression by a State Convention of the party impossible, this convention most respectfully and earnestly suggests and recommends the nomination of that eminent jurist and life-long temperance advocate, the Hon. Noah Davis, as the Republican candidate for Judge of the Court of Appeals, for whom all sincere temperance men should be proud to vote.

A second Anti-Saloon Convention met at Cortlandt on November 30, and formed a permanent organization, called the "New York State Temperance Republican League," to secure the suppression of the manufacture and sale of intoxicating liquors as a beverage. There is a State Committee, consisting of one member from each congressional district, whose duty it is to vigorously push the work of the League. It is not the purpose of the League to form a separate political party, nor to nominate candidates for office, except in extreme cases when Republican nominations are made in the interest of the liquor-traffic. It is the duty of the State Committee to call a State Convention of the League annually, and to prescribe the basis of representation, at which convention officers of the League shall be elected and the State Committee chosen for the ensuing year. The convention asked that an amendment prohibitory of the manufacture or sale of intoxicating liquors as beverages be submitted to the Constitutional Convention and to a popular vote, and that such proposition be submitted separately; and resolved to petition the Legislature to enact a law permitting people annually to vote by separate ballot on the question of prohibiting the liquor-traffic in towns, cities, villages, or by counties. Judge Noah Davis was made president of the League.

The State Prohibitory Amendment Association held its fourth annual convention in New York city on November 30. The president, in his annual address, made the following statement of the purposes and work of the organization: "Four years ago the New York State Constitutional Amendment Association was organized in the city of Syracuse, and we meet to-day in annual session, according to our constitution, to revise the past and take action for the future. The purpose of the Association, as declared in its constitution, is to secure the united action of all organizations who are in sympathy with the principle of prohibition by constitutional enactment of the manufacture and sale of intoxicating beverages, and to secure the united action of all organizations and persons in sympathy with this purpose, without respect to party affiliation. The work of the Association in the last year has been confined largely to the effort to secure the submission of a constitutional amendment to a direct vote of the people by the Legislature. As president of the Association, I made several visits to Albany to try to effect this object. Early in the session, N. M. Curtis, of St. Lawrence County, introduced the concurrent resolution in the Assembly, and Senator Kellogg in the Senate. Nothing was done with it in the Senate. In the Assembly the committee having it in charge reported in favor of its passage. It was ordered to a third reading by a vote of sixty-one to fifty-six, sixty of the sixty-one votes being Republican, and forty-four of the fifty-six negatives being Democrats.

Upon the final vote it received only fifty-three votes in its favor to sixty-five against it; sixty-five being necessary for its passage. Of the fifty-three votes in favor, all were Republicans, and in the negative there were eighteen Republicans and forty-six Democrats. Thus were we again defeated in our efforts to secure its submission. I would recommend that we continue to demand of the Legislature at its coming session the passage of such a concurrent resolution, as heretofore requested, for submission to the people. The people at the recent election having voted in favor of holding a convention for the revision of the Constitution, the next Legislature must provide for the election of members of such convention. It gives an occasion for the election of such men as will favor the submission of a prohibitory amendment, and it becomes the friends of temperance to see to it that good and true men are elected. We should not relax our efforts for the legislative method, however, for the convention is more than a year in the future, and may not be profitable in this direction."

The following resolutions were adopted:

1. That we petition the next Legislature to submit a prohibitory amendment to the Constitution to the voters for their decision. A refusal to do so is a refusal to grant the right guaranteed us by the Constitution itself, and we protest against partisan considerations or business interests dictating or influencing members of the Legislature refusing the same.
2. That the directors take such action as may be necessary to influence the choice of such delegates or members of the State Constitutional Convention ordered by popular vote at the last election as will favor the submission of their amendment by said convention.
3. That the directors circulate petitions favoring this amendment and its submission for adoption by such churches and societies as indorse it, the same when adopted to be forwarded to the secretary of the Association to be presented to the Legislature.
4. That we urge all friends of this movement, whatever their political party predilections by conventions, conferences, or public meeting, in their respective localities, to vigorously prosecute the work of educating public sentiment on this subject.
5. Where a State by statute or prohibitory amendment to its Constitution has prohibited the manufacture and sale of liquors as a beverage, and also where a town or county in the State has prohibited the sale of liquors as a business, it is the duty of the Government to enact such statutes as will make such laws and amendments effective by prohibiting the manufacture and sale of the same, in any quantities whatever, as a beverage, and we hereby petition legislative bodies to adopt such measures as will give effect to public sentiment.
6. That we petition Congress to prohibit the manufacture and sale of liquors as a beverage in the District of Columbia, in the Territories of the United States, and on any or all property owned, held, or controlled by the Government of the United States, and to submit for the ratification of the several States an amendment to the national Constitution prohibiting the manufacture and sale of intoxicating liquors as a beverage.

John N. Stearns, of New York city, was chosen president.

Political.—The only officer to be voted for by the State at large on November 2 being an As-

sociate Judge of the Court of Appeals in the place of Judge Miller, neither party held a State Convention. The Republican State Committee nominated Charles Daniels, and the Democratic State Committee Rufus W. Peckham, both having seats on the bench of the Supreme Court. The Greenbackers nominated Lawrence J. McParlin and the Prohibitionists William J. Groo. Judge Peckham was elected by a plurality of 7,797. The vote was as follows: Democratic, 468,815; Republican, 461,-018; Prohibition, 36,497; Greenback, 2,766.

On the question of calling a Constitutional Convention, submitted to the people in pursuance of a provision of the Constitution, 574,993 affirmative and 30,766 negative votes were cast. Only two counties, Otsego and Schoharie, gave negative majorities. In the following fifteen districts Democrats were elected to Congress, viz.: First, Second, Fourth, Fifth, Sixth, Seventh, Eighth, Ninth, Tenth, Eleventh, Twelfth, Fourteenth, Fifteenth, Eighteenth, and Nineteenth. In the other nineteen districts Republicans were returned. The Legislature consists of 20 Republicans and 12 Democrats in the Senate (elected in 1885), and 74 Republicans and 54 Democrats in the House.

NEW YORK (CITY). Debt.—The total city debt at the close of the year amounted to \$131,601,103.57, from which is to be deducted the sinking-fund at that date, amounting to \$38,294,958.10, leaving the net bonded indebtedness of the city at the beginning of the new year, \$93,306,145.47. This amount includes revenue bonds, but excludes the cash in the treasury and all unpaid and unliquidated accounts.

Of the funded debt not held by the sinking-fund, \$10,383,800 bears interest at the rate of 5 per cent., \$31,016,900 at 6 per cent., and \$35,480,300 at 7 per cent.

It also appears that of the total debt, bonds to the amount of \$77,689,681.49 are payable from the proceeds of taxation, as distinguished from the revenues pledged to the sinking-fund.

Schools.—The following figures exhibit the educational statistics of the city. During the year the total amount received and expended for common-school education was \$4,178,541.13, as follows:

Teachers' wages.....	\$2,948,908 50
School apparatus.....	151,344 28
Sites, buildings, repairing and furnishing school-houses, etc.....	623,048 93
All other incidental expenses, viz.	
Fuel.....	\$94,278 25
Incidental expenses.....	37,191 34
Janitors of ward schools, evening schools, and Normal College.....	126,826 22
City superintendent and assistants, agents of truancy officers, etc., of Board of Education, Nautical School, and clerks to trustees.....	107,801 50
Corporate schools.....	386,092 81
	94,147 16
Total.....	\$4,178,541 18

The amount of public moneys apportioned to the city by the State Superintendent was

\$589,310.96. The amount expended for school purposes is \$206,710.53 less than that expended for the previous year.

During the year five new departments or schools were organized, and four were consolidated, making a total of 302. The classes of schools and the number of schools in each class are shown in the following table:

Normal College and training department.....	2
Grammar-schools for males.....	47
Grammar-schools for females.....	47
Grammar-schools for both sexes.....	13
Primary departments of grammar-schools.....	77
Primary schools (separate).....	89
Corporate schools (industrial schools, reformatories, orphan asylums, etc.).....	48
Evening schools.....	23
Nautical school (on board ship St. Mary's).....	1
Total.....	302

For the year ending Aug. 20, 1886, the daily average attendance, in all the schools, was 152,-936; the number of teachers, 4,098. The increase in daily attendance was 2,376, and the increase in the number of teachers employed was 122. The returns show that the whole number of different pupils taught was 234,820.

During the year there were erected three school-buildings, and extensive additions were made to two schools already organized. There will thus be obtained increased accommodation for 3,943 pupils.

The compulsory education act is enforced. During the year, 3,312 reported as truants, and 1,432 non-attendants were placed in school.

The great majority of the appointments of female assistant teachers are made from among the graduates of the Normal College. At the commencement of that institution, held in June, there were 284 graduates, of whom 263 have been licensed to teach, the remaining 21 being under age.

The 28 evening-schools are conducted on a plan that has been thoroughly tested and found adapted to the needs of a great cosmopolitan city. Junior schools have a graded course, and admit pupils from thirteen to eighteen years of age. Senior schools have a course in which each pupil has an option of any two of the subjects taught; pupils in these schools must be at least sixteen years of age. In all evening-schools there may be formed classes in which foreigners may study English.

Savings-Banks.—The savings-banks reports for 1886 show that the resources of these banks in New York city are \$320,475,726, as against \$301,147,831 in 1885, an increase of \$19,327,895 in the twelve months. The amount deposited is \$270,569,399, as against \$255,946,-181 in 1885, an increase of \$14,628,218, and the total number of depositors is 669,438, as against 640,524 in 1885, an increase of 28,913.

Vital Statistics.—The deaths in the city during 1886 numbered 35,330, the births 31,319, and the marriages 12,216. In 1885 the record was 35,682 deaths, 30,050 births, and 11,716 marriages. Of the 24,432 persons married in 1886, 7,425 men and 6,660 women were of foreign

birth. Widows to the number of 1,245, and 1,590 widowers, were married a second time; 215 bridegrooms and 2,964 brides were under twenty years of age; 42 bridegrooms and six brides were over sixty years of age; 24 bridegrooms and one bride were over seventy, and two men were married at the age of eighty-odd years. Of the 37,330 persons that died, 5,482 lost their lives by consumption, 3,665 by pneumonia, and 1,707 by bronchitis, or 10,854 from pulmonary diseases. One person died from yellow fever, 81 persons from small-pox, 677 from measles, 370 from scarlet fever, 1,731 from diphtheria, 966 from croup, 576 from whooping-cough, 14 from typhus fever, 324 from typhoid fever, and 224 from cerebro-spinal meningitis, or 4,914 from contagious diseases. There were 224 suicides. While 2,475 deaths were of persons over seventy years of age, 9,871 were of infants that lived less than a year.

Fire Statistics.—The following information about fires in recent years shows a marked improvement in the work of the fire department:

PERIOD.	Number of fires.	Losses.	Average loss per fire.
1885.....	2,479	\$8,789,283	\$1,528 55
1886.....	2,415	8,300,469	1,366 65
In favor of 1886.....	64	\$458,814	\$161 90
FIVE-YEAR PERIODS.			
1867 to 1871.....	4,685	\$16,906,961	\$3,627 95
1872 to 1876.....	7,274	14,665,513	2,016 57
1877 to 1881.....	8,223	19,770,469	2,404 29
1882 to 1886.....	11,470	18,258,107	1,591 38

Immigration.—The report of the Emigration Commission shows the following numbers of passengers arriving in New York in 1886: Cabin, 36,929 aliens and 41,721 citizens; steerage, 284,885 aliens and 16,002 citizens. Total, 321,814 aliens and 57,723 citizens, or a grand total of 379,537. There were 153 deaths and 76 births on shipboard. Alien immigration has increased 30,748 over that of 1885. Of the aliens arriving during the year 180,478 were adult males, 85,368 adult females, and 55,968 children under twelve years of age. Of the arrivals, the following were the destinations: Connecticut, 8,000; California, 5,600; Canada, 2,500; Dakota, 4,500; Illinois, 25,500; Iowa, 7,800; Kansas, 4,300; Michigan, 9,700; Missouri, 5,300; Minnesota, 12,300; Massachusetts, 10,200; Nebraska, 5,000; New Jersey, 10,400; New York, 110,000; Ohio, 9,200; Pennsylvania, 42,000; Texas, 3,000; and Wisconsin, 9,100. Of the immigrants, 23,839 were met at Castle Garden by friends, 585 husbands met their wives, and 502 parents their children. There were treated at the hospital 640 patients. Employment was found in 1886 for 8,345 men and 5,912 women. During the year the commission expended \$125,700 derived from the fifty cents per capita tax on steamship companies. There were 997 immigrants returned as paupers, insane, cripples, and convicts.

Less than ten years ago the Hebrew population of the city, according to the statistics, was fewer than 50,000. It now largely exceeds that number. From the annual report of the Board of Relief of the United Hebrew Charities it appears that the number of Hebrew immigrants landed at Castle Garden during the year that ended on October 1 was 27,368. In 1885 the number was 18,535. Only 6,135 were bound for other points than New York. Thus the accessions to the local Hebrew population in a single year, apart from natural increase, was by foreign immigration at this single landing-place, 21,213. Most of them came from Russia and Austria, religious and race persecution stimulating them to the adventure; 17,796 were Russian subjects, and 7,056 Austrian. Of the remainder, 1,554 were Roumanians, also driven forth by persecution, and 857 were Germans. Then the schedule suddenly sinks to English subjects, fifty-nine; French, eight; Dutch, seven; Turkish and Danish, each five; and Swedish, one. There were 6,992 children and 20,376 adults, distributed between the sexes in the proportion of 18,723 men to 6,653 women. Besides these poor Hebrews who entered New York through Castle Garden, there were hundreds that came in through other avenues. A Jewish theological seminary was opened in the autumn.

Political.—The mayoralty contest presented some novel features. For the first time the workingmen, organized in the labor unions, presented a candidate for mayor in the person of Henry George, who was supported also by the Irving Hall branch of the Democracy. Tammany Hall and the County Democracy united on Abram S. Hewitt. The Republicans nominated Theodore Roosevelt. Fear of the agrarian views of Mr. George drove many Republican voters from Mr. Roosevelt to Mr. Hewitt, and he was elected. The vote on November 2 was: Hewitt, 90,552; George, 68,110; Roosevelt, 60,435.

The following is the platform on which Mr. George made the canvass:

1. Holding that the corruptions of government and the impoverishment of labor result from neglect of the self-evident truths proclaimed by the founders of this republic that all men are created equal and are endowed by their Creator with unalienable rights, we aim at the abolition of the system which compels men to pay their fellow-creatures for the use of God's gifts to all, and permits monopolizers to deprive labor of natural opportunities for employment, thus filling the land with tramps and paupers and bringing about an unnatural competition which tends to reduce wages to starvation rates and to make the wealth-producer the industrial slave of those who grow rich by his toil.

2. Holding, moreover, that the advantages arising from social growth and improvement belong to society at large, we aim at the abolition of the system which makes such beneficent inventions as the railroad and telegraph a means for the oppression of the people and the aggrandizement of an aristocracy of wealth and power. We declare the true purpose of government to be the maintenance of that sacred right of property which gives to every one opportunity to employ his labor and security that he shall enjoy its fruits; to prevent the strong from oppressing the weak and the

unscrupulous from robbing the honest; and to do for the equal benefit of all such things as can be better done by organized society than by individuals; and we aim at the abolition of all laws which give to any class of citizens advantages, either judicial, financial, industrial, or political, that are not equally shared by all others.

3. We further declare that the people of New York city should have full control of their own local affairs; that the practice of drawing grand-jurors from one class should cease, and the requirements of a property qualification for trial-jurors should be abolished; that the procedure of our courts should be so simplified and reformed that the rich shall have no advantage over the poor; that the officious intermeddling of the police with peaceful assemblages should be stopped; that the laws for the safety and sanitary inspection of buildings should be enforced; that in public work the direct employment of labor should be preferred to the system which gives contractors opportunity to defraud the city while grinding their workmen, and that in public employment equal pay should be accorded to equal work without distinction of sex.

4. We declare the crowding of so many of our people into narrow tenements at enormous rents, while half the area of the city is yet unbuilt upon, to be a scandalous evil, and that to remedy this state of things all taxes on buildings and improvements should be abolished, so that no fine shall be put upon the employment of labor in increasing living accommodations, and that taxes should be levied on land irrespective of improvements, so that those who are now holding land vacant shall be compelled either to build on it themselves or to give up the land to those who will.

5. We declare furthermore that the enormous value which the presence of a million and a half of people gives to the land of this city belongs properly to the whole community; that it should not go to the enrichment of individuals and corporations, but should be taken in taxation and applied to the improvement and beautifying of the city, to the promotion of the health, comfort, education, and recreation of its people, and to the providing of means of transit commensurate with the needs of a great metropolis. We also declare that existing means of transit should not be left in the hands of corporations, which, while gaining enormous profits from the growth of population, oppress their employés and provoke strikes that interrupt travel and imperil the public peace, but should by lawful process be assumed by the city and operated for public benefit.

6. To clear the way for such reforms as are impossible without it we favor a constitutional convention, and, since the ballot is the only method by which in our republic the redress of political and social grievances is to be sought, we especially call for such changes in our elective methods as shall lessen the need of money in elections, discourage bribery, and prevent intimidation.

7. And since in the coming most important municipal election independent political action affords the only hope of exposing and breaking up the extortion and peculation by which a standing army of professional politicians corrupt the people whom they plunder, we call on all citizens who desire honest government to join us in an effort to secure it, and to show for once that the will of the people may prevail even against the money and organization of banded spoilsmen.

Criminal Trials.—The most remarkable exposure of corruption since the overthrow of the Tweed Ring was the bringing to light of the bribery of the aldermen through which in 1884 the Broadway Surface Railroad obtained its franchise. During the session of the Legislature the Senate appointed an investigating committee to inquire into this matter. Thereupon some of the aldermen and others who

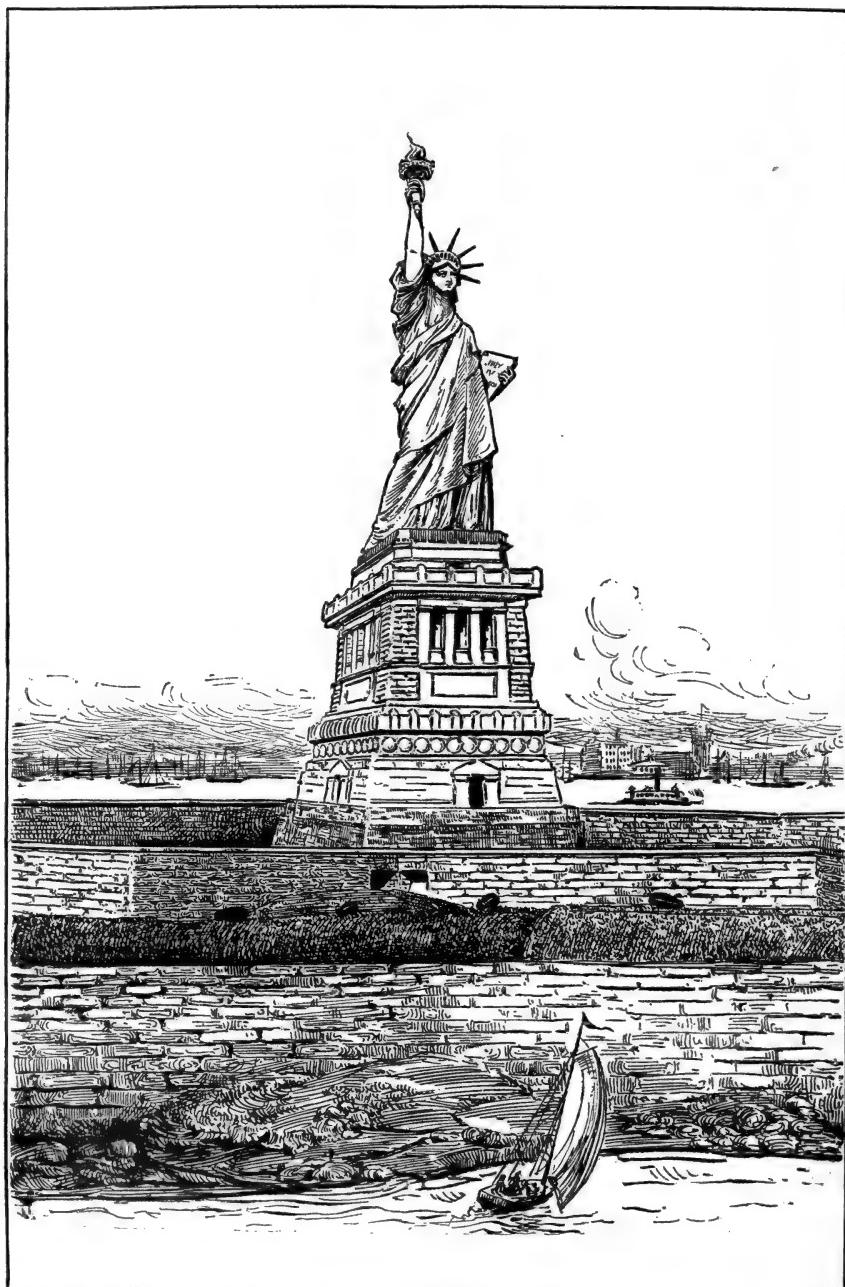
had acted as intermediaries fled from the State, and subsequently others took refuge in Canada. The investigation was pushed by the committee, and in the mean time the district attorney and police were not idle. Only two of the aldermen of that year were free from suspicion. In the end most of the aldermen and several of the officers of the railroad were indicted. Alderman Henry W. Jaehne was the first to be tried. After a well-contested trial he was convicted in May and sentenced to nine years and ten months in State Prison. He appealed, and his conviction was finally affirmed by the Court of Appeals in October. In the following month Alderman Arthur J. McQuade was tried, but the jury disagreed. On a second trial, in December, he was convicted.

In June Johann Most and three other anarchists were convicted of inciting to riot by speeches made at a meeting in April. They were sentenced to confinement in the penitentiary for nine months or a year, and two of them were also fined.

In June also several members of labor unions were convicted and sentenced for "boycotting."

Statue of Liberty.—On October 28 Bartholdi's statue of "Liberty Enlightening the World" was unveiled with imposing ceremonies in the presence of representatives of this country and France. This statue grew out of a suggestion, soon after the establishment of the republic in France, that some suitable memorial of the fraternal feeling between that country and the United States should be erected. The French-American Union was formed in 1874, and included among its members some of the foremost men in France. A popular subscription was begun, and more than 1,000,000 francs were realized. The plan and model offered by Frédéric August Bartholdi were adopted, and the statue executed by him. The United States Government set apart Bedlow's Island, in New York harbor, and \$300,000 was raised by popular subscriptions, exhibitions, and other means, to build the pedestal. On July 4, 1880, the statue was formally delivered to the American minister in Paris. It is 151 feet 1 inch high, and the top of the torch is 305 feet 11 inches above low water. It is the largest statue ever made. The statue of Lafayette, in Union Square, New York, is by the same artist. (For mechanical details of the statue of "Liberty," see *ENGINEERING*.)

Free Circulating Libraries.—According to the latest library statistics, there are in the city of New York ninety-six public libraries (so called) of one thousand volumes and over, each, containing in the aggregate 1,421,618 volumes; but only five of these, aggregating 100,453 volumes, are free circulating libraries, from which books can be drawn for home use by any and every resident who can give a responsible reference. The eagerness with which these few books are sought for by the large number of readers who avail themselves of the privileges



BARTHOLDI'S STATUE OF LIBERTY,
Bedlow's Island, New York Harbor.

Unveiled October 28, 1886.

afforded, as shown by the statistics given below, is sufficient proof, if any were needed, of the use that would be made of a large free public library accessible to all, and of such a character as would place the city in the same rank in this respect as it maintains in other respects among the cities of the country.

The New York Free Circulating Library, incorporated March 15, 1880, opened March 1 of that year, at 36 Bond Street, with 1,837 volumes upon its shelves. November 1 the number of volumes had increased to 3,674, "fully one third of which were of such a character as to be rarely, if ever, called for," according to the Library Committee; yet, during this same period, 22,558 volumes were given out at an average of 114 per day, and only two books were lost. The total number of applicants registered was 2,089—an average of over ten per day. On June 1 a reading-room was opened, supplied with 33 periodicals. During the five months to November 1 there were 1,988 readers, and 2,361 periodicals were read.

Nov. 1, 1881, the number of volumes had increased to 5,085, and the circulation for the year was 69,280—an average of 195 per day—each available volume having circulated over seventeen times, and but six volumes were lost; there were 3,726 new applicants, and 9,605 readers visited the reading-room. In 1882 more than 2,000 volumes were added, bringing the number up to 7,206, and the circulation was 71,840—ten times each for the whole number of books, averaging 202 per day, with a loss of eleven books; the number of readers in the reading-room doubled to 18,608, and there were 3,640 new applicants. In May, 1883, the library was removed to more commodious quarters at 49 Bond Street, 1,640 volumes were added during the year, and the circulation advanced to 81,233—an average of 228 per day, with a loss of eleven volumes; 21,141 readers in the reading-room, and 2,295 new applicants.

Nov. 1, 1884, we find 10,424 volumes on the shelves, having circulated an average of 271 per day, amounting to 95,296 volumes, with a loss of three books only; 50 per cent. increase of reading-room visitors raised their number to 30,190, and there were 2,170 new applicants.

Dec. 8, 1884, a branch library, established and endowed by Mr. Oswald Ottendorfer, at 135 Second Avenue, was opened to the public, with a carefully prepared printed catalogue of English and German books, numbering 8,819, and during ten and a half months, to Nov. 1, 1885, the circulation was 95,316 volumes to 3,279 applicants—a daily average of 298 volumes—with a loss of but four books, and 53,964 readers had used the reading-room. The number of volumes in this branch, Nov. 1, 1885, was 10,197. The number of volumes at the same date at the main library, 40 Bond Street, was 11,427. The circulation at Bond Street for the year ending Nov. 1, 1885, was 105,643 volumes—a daily average of 297 volumes—

with a loss of one book; and there were 2,116 new applicants, and 43,404 readers in the reading-room. The year showed in all 200,959 volumes circulated, against 95,296 in the previous year; 5,395 new applicants, against 2,170 the previous year; and 97,368 readers in the reading-rooms, or 67,178 more than in any previous year.

Nov. 1, 1886, there were 18,321 volumes at 49 Bond Street, and 12,002 in the Ottendorfer Branch—a total of 25,323. The total circulation for the year was 234,448 volumes—a gain of 33,489 on the preceding year, and only two books were lost; the number of readers in the reading-rooms was 108,760—a gain of 11,392. The circulation at Bond Street was 105,763 volumes—averaging 295 per day—while at the Ottendorfer it reached 128,685 volumes, with a daily average of 359. There were 59,657 visitors to the Ottendorfer reading-room, and 2,328 new applicants for books, while there were 49,103 readers in the reading-room at Bond Street, and 1,714 new applicants there. The Sunday circulation of books has increased from 530 volumes for nineteen Sundays in 1881 to 8,647 at Bond Street, and 11,093 at the Ottendorfer for the year 1886. The statistical results of the six years' work of the New York Free Circulating Library may be summed up as follows: The number of volumes on the shelves has increased sevenfold, the circulation tenfold, and the readers in the reading-rooms fifty-four-fold; but the beneficial results to its patrons are beyond estimate.

A new branch is to be established immediately in Forty-second Street, between Seventh and Eighth Avenues, from a gift of \$50,000 by Miss Catharine Wolfe Bruce; it will be called the George Bruce Library, in memory of her father, the late George Bruce, type-founder, of this city. Plans are now being drawn for another new branch to be located in Jackson Square.

Under the new library law of the State, the New York Free Circulating Library will receive from the Board of Apportionment of the city the sum of \$10,000 for the year 1887.

The Apprentices' Library, No. 18 East Sixteenth Street, established originally for apprentice boys, has gradually opened its doors step by step, and made itself free to work-women, sales-women, teachers, and those engaged in factories. When the freedom of the institution was thus granted, there was a large accession to its readers, and it was observed that these women wanted biographies, histories, and works on science and art, and others that would instruct and elevate. The society, during the last sixty years, has expended over \$400,000 for the free benefit of those who have enjoyed its privileges, and has accumulated a library of nearly 71,000 volumes. Its income is \$40,000, all of which, except \$5,000 put into a sinking-fund, is freely given away. On Aug. 1, 1886, it was made an absolutely free circulating library. As soon as this became known, so

great was the desire of people to get books that the library attendants were unable to supply the demand, and the average circulation per day increased from less than 500 to nearly 800. With 70,775 volumes on the shelves, the circulation from August 1 to December 31 was 97,743—an average of 788 a day; the number of new applicants was 5,060, and the number of readers in the reading-room was 16,381. The Library "now reaches a better, more intelligent, and older class of people," says one of the Library Committee. This library will receive \$5,000 for 1887 from the Board of Apportionment of the city.

The New York City Mission has three free circulating libraries under its charge. The De Witt Memorial Library, 280 Rivington Street, was opened Jan. 1, 1882, with 1,393 volumes, and circulated 5,854 volumes the first year; in 1883, with 1,698 volumes, the circulation was 12,027; in 1884 the number of volumes was 1,942, and the circulation 7,990; in 1885, number of volumes 2,031, circulation 6,461, number of members using library, 1,515; in 1886, 2,064 volumes, circulated to the number of 9,378, and the number of members was 2,077; the daily average of circulation was 109 volumes. The library was opened only on two days in the week from 3 to 8 P. M.

The Broome Street Free Library, 395 Broome Street, was opened in 1886, with 2,291 volumes; its circulation was 4,241 volumes to 289 members; the daily average 22 volumes. The room is large, with ample accommodation for 10,000 volumes without encroaching on the reading-room, which was visited by 3,506 visitors, though open only from 4 to 9 P. M. on four days of the week.

Another library, under the charge of the mission, Olivet Church Library, in Second Street, near Second Avenue, with 1,800 volumes, was opened to the public in January, 1887. It was established in December, 1883, and has a printed catalogue of 1,514 titles, each title having a note describing the book.

A Free Reading-Room for Boys was opened, under the auspices of the Loyal Legion Temperance Society, at No. 16 East Eighteenth Street, May 1, 1883. The rooms are opened in the evening of each day from 7 till 9.30. The attendance in 1883 was 10,789; in 1884, 26,849; in 1885, 29,954; and in 1886, 33,843—making a total of 101,435 in three and one half years. The library, at the end of 1883, contained but 240 volumes; end of 1884, 500 volumes; end of 1885, 1,739; end of 1886, 2,499. The average yearly circulation has been 1,100 volumes; number of applicants each year, about 500; number of readers in the reading-room each day, 115; monthly average of books taken home for reading, 140; 3,200 names are enrolled on the membership-book, and about 1,090 boys attend more or less regularly. The books are all carefully selected, and only those are purchased that will have a tendency to elevate the working-boys. Over 300 boys have been successfully placed in business and a number sent to college by the personal influence brought to bear on them. There are a number of literary societies for developing literary taste and skill in debate, and classes in various studies and lectures are open to all. An industrial savings-bank is one of the features, in which the boys have on deposit, \$1,334.28. In May, 1886, new rooms were secured at No. 8 West 14th St.

The smallest, but one of the most successful and useful of libraries, is that of the Children's Library Association, 436 West Thirty-fifth Street. Its object is to furnish a library and reading-room for children of twelve years of age and under, to which they are admitted by tickets given by their school-teachers or friends. It was opened from January to May, 1886, with a library of 300 volumes, with children's magazines, games, etc. Boys are admitted Tuesdays and Thursdays, and every evening; girls in the afternoons of the other days. The attendance averaged 64 a day, and on one day but eight volumes were left on the shelves. It was conducted at an expense of but \$120 for the first year.

NEW YORK FREE CIRCULATING LIBRARIES.

NAME.	Year,	No. of volumes on shelves, Nov. 1.	VOLUMES CIRCULATED.				Number of readers in reading-rooms.	Number of new applicants.
			Total.	Week-day.	Sunday.	Average per day.		
Bond Street	1880	8,674	22,558	...	...	114	1,988	2,039
Bond Street	1881	6,085	69,250	58,750	590	195	9,605	8,726
Bond Street	1882	7,206	71,840	65,995	8,245	202	18,603	8,640
Bond Street	1883	8,846	81,238	76,872	4,861	228	21,141	2,295
Bond Street	1884	10,424	95,296	88,528	6,773	271	30,190	2,170
Bond Street	1885	11,427	105,648	97,360	8,283	297	48,404	2,116
Ottendorfer	1885	10,197	95,316	86,857	8,459	298	53,964	8,279
Bond Street	1886	13,321	105,768	97,116	8,647	295	49,108	1,714
Ottendorfer	1886	12,002	128,655	117,592	11,093	859	59,657	2,328
Apprentices', Aug. to Dec., inc.	1886	70,775	97,748	...	...	788	16,381	5,060
De Witt	1882	(Jan. 1) 1,393	5,854	...	...	...	...	...
De Witt	1883	1,698	12,027	...	...	...	...	...
De Witt	1884	1,942	7,990	...	...	...	...	1,515
De Witt	1885	2,091	6,461	...	...	...	...	1,515
De Witt	1886	2,064	9,378	...	...	109	...	2,077
Broome Street	1886	2,291	4,241	...	...	22	8,506	289
Boys' Free Reading-Room	1883	(Dec. 1) 240	Yearly average,	Monthly average,	140	...	10,789	Yearly average,
Boys' Free Reading-Room	1884	500					26,849	500
Boys' Free Reading-Room	1885	1,739					29,954	600
Boys' Free Reading-Room	1886	2,499					38,848	8,200

NEW ZEALAND. See page 65.

NICARAGUA, a republic in Central America. Area, 51,600 square miles; population in 1884, 259,794. The capital is Managua, population, 15,000.

Government.—The President is Don Evaristo Carazo, whose term of office will expire on March 1, 1891. Pending the formation of a new Cabinet, the acting ministers retained their portfolios. They were: Foreign Affairs, Finance, War and Navy, Gen. J. Elizondo; Justice and Public Worship, Dr. F. Dedgadillo; Interior, J. Chamorro. The President of the Senate is Señor G. Lacayo; the President of the Chamber of Deputies, Señor M. Osorno. The Bishop of Nicaragua is Señor F. Ulloa de Larios. The Nicaraguan Minister at Washington is Gen. Joaquin Zavala, the Consul-General at New York, A. Cotheal, and the American Consul at Managua, Henry E. Lord; the consular agent at San Juan del Sur is Charles Holman.

Army.—The army was reorganized in the summer of 1886, and has been placed under the command of Gen. J. Urtecho.

Finances.—Nicaragua has no foreign debt. English capitalists have spontaneously offered the Government a loan to the amount of \$1,445,000, to enable it to pay off its internal debt of \$843,000, and withdraw from circulation its paper money, the loan to be secured by the net earnings of the Government railroads. Simultaneously another loan has been tendered the Government for the improvement of the river and port of San Juan del Norte, the customs receipts at the latter to serve as guarantee. The actual income of the Government during the fiscal year 1884-'85 was \$1,835,000, and the outlay \$1,767,000. Dating from May 1, 1886, the duties on imports were raised.

Frontier Dispute.—In November the Government sent its representative, Don Gilberto Larios, to Guatemala for the settlement of the boundary between Nicaragua and Costa Rica, hitherto ill defined.

Railroads.—There were in operation, in 1886, the line from Corinto to Chinandega, 20 kilometres in length; the one from Chinandega *via* Leon Viejo to Moabita, 72 kilometres; and the one from Managua *via* Masaya to Granada, 52 kilometres.

In June the Government made a contract with Don Pedro Ramirez for the construction of a railway along the shore of Lake Nicaragua to the Atlantic coast.

Telegraphs.—There were in operation, in 1884, 2,090 kilometres of wire, and 640 kilometres projected. The number of offices was 45; messages sent, 123,141, of which 18,694 were Government messages, and 12,840 relating to the working of the line. In 1885 the receipts amounted to \$26,000, and the expenses to \$36,200.

Early in 1886 there went into operation a telephone between Managua and Masaya, and soon afterward one between San Ubaldo and Acoyapa.

Lake Navigation.—In September the new lake-steamer "Progreso" made its trial-trip, with President Cárdenas on board, between Managua and Momotombo, the distance being cleared in two hours and fifteen minutes, at the rate of 15 miles an hour. The machinery was made in England; the boat is 134 feet in length.

Postal Service.—In 1883-'84 the Nicaraguan post-office forwarded inland 1,261,808 items of mail-matter; abroad, 423,127; total, 1,684,935. The receipts in 1885 were \$12,000; the expense, \$25,000.

Government Aid to Agriculture.—In May the Government decreed, for five years to come, a bounty of eighty cents per quintal of 101 $\frac{1}{2}$ pounds avoidupois, to be paid to wheat-producers, by way of encouragement, provided the farmer raised over twenty-five quintals; to those laying out cocoa-plantations, for ten years, ten cents yearly on every cocoa-tree that has reached the age of five years, in the departments of Chontales, Matagalpa, Nueva Segovia, Leon, and Chinandega, provided the plantation exceeds in number 3,000 trees.

Education.—The Nicaragua University, called the Oriental National Institute, is described as being in a flourishing condition in 1886. The number of students was 140.

Volcanic Eruption.—A column of fire suddenly rose from the crater of Momotombo on May 22, accompanied by a shower of ashes and earth, spreading westward as far as Chinandega, and toward the south all the way to Nugarte, the glare during the night being reflected by Lake Nicaragua, and perceptible from the Pacific Ocean. Managua and other towns experienced an earthquake simultaneously. The volcano remained active till May 25. A second, less violent, eruption took place in November, when a shower of fine ashes filled the atmosphere at Leon and other places. Leon being nearest the volcano, fears were entertained that eventually it might have the fate of Pompeii.

New Lighthouse.—On August 7 the new lighthouse at Cojunto was lighted for the first time, its light being clearly discernible a distance of 18 miles at sea.

Commerce.—The imports and exports in four years have been as follows:

YEARS.	Imports.	Exports.
1879-'80.....	\$2,936,000	\$8,708,000
1881-'82.....	3,862,000	4,022,000
1883-'84.....	3,794,981	4,904,648
1884-'85.....	2,800,000	2,443,000

The Central American war immediately affected Nicaraguan trade in 1884-'85. The chief export articles were India-rubber, coffee, fustic, indigo, hides, cattle, and cedar-wood. There entered Nicaraguan ports in 1884-'85 275 vessels, measuring jointly 272,549 tons. The American trade with Nicaragua in 1886 was: Import into the United States, \$1,067,902; domestic export to Nicaragua, \$471,671.

The Ship-Canal.—On Jan. 6, 1887, Senator

Edmunds, by direction of the Committee on Foreign Relations, reported favorably, in the United States Congress, a bill to incorporate the Maritime Canal Company of Nicaragua. The bill creates Frederick Billings, Charles P. Daly, H. L. Hotchkiss, Francis A. Stout, W. B. Franklin, Daniel Ammen, William L. Merry, Horace Davis, Edward F. Beale, James H. McMullin, Sheppard Homans, and their associates and successors, a body corporate, under the name of the Maritime Canal Company of Nicaragua, for the purpose of enjoying all rights contained in any canal concession made to them by Nicaragua or Costa Rica. The committee say: "Looking to the large benefits not only to the United States and the Republic of Nicaragua and her sister republics, but also to the commerce and intercommunication of the whole sisterhood of civilized governments on this globe, the committee recommends the passage of the bill, in the hope that the resources and enterprise of private citizens of our country may be enabled to accomplish this great work, even if our Government itself is not yet ready to undertake it."

Commander Henry C. Taylor, of the United States Navy, in lecture delivered before the American Geographical Society, in New York, on Oct. 8, 1886, described the plan of the Nicaragua Canal, and added: "The estimate is about \$50,000,000, and \$75,000,000 is proposed for capital; but if it cost \$200,000,000, we have a tonnage in the beginning which will pay 6 per cent. upon the investment, and the tonnage will increase largely. There can be no doubt that, besides the ships now needing the canal, a great additional commerce will be created by the existence of such transit. The estimate of the amount of tonnage passing through the canal may now with justice be raised to five million tons. Upon this tonnage, at a rate of \$2.50 per ton—which is about the rate of toll through the Suez Canal—\$12,500,000 would be the gross annual revenue. In the estimates for a Nicaragua canal, \$500,000 has been allowed for the working expenses annually, and this would leave a net revenue of \$12,000,000 with which to pay the interest upon the cost of construction. Though many able engineers believe that it can be built for much less, I believe that \$75,000,000 will represent very closely its total cost. To those who, like myself, are assured of a Nicaragua canal in the future, it may be of interest to consider it with reference to the United States. From a point of view, strategic and political, it may be said that if this canal were the southern boundary of the United States, our need to hold it would be overwhelming and unquestioned. These reasons for our holding the canal would apply in the case of a canal along any practicable route, but much more in the case of a Nicaragua canal, for, if that route be followed, the construction of the canal at once establishes in the lake, in addition to the water transit between the oceans, a grand interior

fresh-water harbor within a few hours of either ocean. A well-appointed dock-yard would be established on the shores of the lake, or on its lofty island of Ometepec. Hospital-sites and camping-grounds for the crews of vessels would be selected close to the fleet's anchorage, but well above the fever-line, on the mountain-slope, in a bracing and healthful air. Store-houses and hulks, coal-piles and elevators would give facilities for the rapid coaling and provisioning of the fleet. Stone dry docks along-shore, and floating docks sent from the United States in sections, to be put together on the lake, would offer opportunities for the quick repairs of damages sustained in battle. Nicaragua has cordially offered to our Government canal rights of inestimable importance. It is not for us to know what wise reasons caused our Government to decline this offer. Nicaragua has now and for years offered to certain of our citizens a liberal concession for the construction of a canal. These citizens are to-day unable to accept this offer though anxious to do so, because the fatal apathy of our capitalists and merchants denies to this project the assurance of financial support."

The saving in distance and time by canal would be as follows:

FROM—	Miles.	Gain for sailing-ships.	Gain for freight-steamer.
New York to Hong-Kong.....	2,450	27 days.	12 days.
New York to Yokohama.....	4,200	40 "	21 "
New York to Callao.....	4,390	52 "	22 "
New York to Honolulu.....	7,100	67 "	35 "
New York to San Francisco...	7,370	72 "	37 "

NORTH CAROLINA. State Government.—The following were the State officers during the year: Governor, Alfred M. Scales, Democrat; Lieutenant-Governor, Charles M. Stedman; Secretary of State, William L. Saunders; Treasurer, Donald W. Bain; Auditor, William P. Roberts; Attorney-General, Theodore F. Davidson; Superintendent of Public Instruction, Sidney M. Finger; Commissioner of Agriculture, Montford McGlehn; Supreme Court: Chief-Justice, William N. H. Smith; Associate Justices, Thomas S. Ashe and Augustus S. Merrimon.

Finances.—The public fund is charged and credited with all receipts and disbursements not connected with the educational fund. The receipts of this fund for the two years ending Nov. 30, 1885, were \$378,957.62; and for Nov. 30, 1886, \$835,421.03. These receipts are subject to a deduction of certain special funds, not constituting a part of the ordinary revenue. They are as follow:

ITEMS.	1885.	1886.
Tax on fertilizers	\$41,500	\$41,000
Sale of useless arms.....	2,000	.....
Sale of lot.....	50	.....
Dividends from N. C. R. bonds...	125,490	143,820
Total	\$169,040	\$184,820

Deducting these special amounts, the ordinary revenues for the fiscal years are as follow: Year ending Nov. 30, 1885, \$209,917.62; year ending Nov. 30, 1886, \$650,601.03. The large increase of revenue for the fiscal year ending Nov. 30, 1886, over the amount for the fiscal year of 1885, is owing to the suspension of the collection of the State tax on property in the year 1884. The collections made by the sheriffs for 1884, under Schedules B and C of the act to raise revenue, were paid into the treasury during 1885. The suspension of the State tax for 1884 was in consideration of the payment of \$600,000 on May 1, 1884, by the authorities of the Western North Carolina Railroad. The expenditures from this fund for the fiscal year ending Nov. 30, 1885, were \$795,486.26; and for Nov. 30, 1886, \$1,172,652.31. These expenditures are subject to a deduction of special funds, not provided for by the ordinary revenues of the State, but payable out of moneys specially collected. They are as follow:

ITEMS.	1885.	1886.
Agricultural Department	\$41,500 00	\$41,000 00
Interest, 6-per-cent. bonds.....	78,240 00	201,195 00
Executive Mansion.....	.....	2,063 86
Investment in 4-per-cent. State bonds.....	.....	247,515 98
Total.....	\$119,740 00	\$492,079 84

Deducting these amounts, the expenditures for the two fiscal years, payable out of the ordinary funds of the State, for general purposes, were, Nov. 30, 1885, \$675,746.26; Nov. 30, 1886, \$680,572.97.

The balance in the hands of the State Treasurer on Nov. 30, 1886, was as follows:

Educational fund.....	\$28,228 88
Public fund.....	172,327 06
Total.....	\$195,556 44

The State Treasurer reports that there was paid in 1885 and 1886 for the support of the Penitentiary, \$121,900; the Institution for the Deaf, Dumb, and the Blind, \$36,000; the North Carolina Insane Asylum (at Raleigh), \$51,000; the Western North Carolina Insane Asylum, \$46,500; and the Eastern North Carolina Insane Asylum, \$25,000; total, \$280,400. The asylum at Raleigh now asks for \$56,000; the Western Asylum for \$80,000; and the Institution for the Deaf, Dumb, and the Blind, for \$40,000.

The assessed value of real and personal property is \$202,000,000.

The principal of the bonded debt, recognized in the act of March 4, 1879, to compromise, commute, and settle the State debt, as extended and amended by acts of Jan. 16, 1883, and March 3, 1885, and authorized to be redeemed, is as follows:

Forty-per-cent. class.....	\$5,477,400 00
Twenty-five-per-cent. class.....	3,261,045 00
Fifteen-per-cent. class.....	8,585,600 00
Total.....	\$12,627,045 00

Bonds have been redeemed as follows:	
First class, 40 per cent.	\$4,865,900 00
Second class, 25 per cent.	2,525,045 00
Third class, 15 per cent.	8,116,100 00

Total.....	\$10,507,045 00
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New 4-per-cent. bonds have been issued as follows:

At 40 per cent.	\$1,946,860 00
At 25 per cent.	681,261 25
At 15 per cent.	467,415 00
Act March 9, 1885.....	20,000 00

Total.....	\$8,045,086 25
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At the close of the year ending Nov. 30, 1884, there was a balance in the treasury to the credit of the 4-per-cent. interest fund, amounting to \$810,014.52. Of this sum, \$247,815.98 has since been invested in \$272,250 of 4-per-cent. bonds.

Education.—The school statistics for North Carolina, for the scholastic year ending in 1885, were as follow:

Paid teachers—white.....	\$317,142 90
Paid teachers—colored.....	196,004 37
For school-houses—white.....	37,427 91
For school-houses—colored.....	26,738 42
County superintendents.....	12,416 48
Teachers' institutes—white.....	2,075 81
Teachers' institutes—colored.....	1,329 08
Other purposes.....	20,974 67
Treasurers' commissions.....	16,452 48

Total.....	\$630,552 12
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Five counties did not report, nor does the above statement embrace the local taxes for graded schools, which, being added, will increase the amount up to \$750,000. There were 2,721 teachers in attendance on the normal schools during the year, and 3,485 on the institutes. In 1877 the number of pupils enrolled was 98,764; in 1885 it was 298,166. In 1879 the value of school property was \$143,569; in 1885 it was \$565,960. There was an increase in receipts from ordinary taxation in 1885 of \$51,698.32; and there was also an increase in the average length of school terms. In 1866 there was an increase in receipts over those of 1885, of \$38,767.41. Out of 580,127 children between the ages of six and twenty-one, 298,166 attended the public schools in 1885. Out of 547,308 children between the same ages, 305,598 attended the public schools in 1886.

An industrial school has been established at Raleigh.

The catalogue of the University of North Carolina for the session of 1885-'86 shows 204 students. The preparatory classes in Latin and Greek were discontinued at the beginning of the year, although many students of insufficient preparation were thereby excluded from the university. The faculty numbered fifteen, with another member to be added. A College of Agriculture and the Mechanic Arts, a department of normal instruction, and a school of law, offer special courses to students in these branches of study. Post-graduate instruction is offered in every department.

Penitentiary.—The greatest number of prison-

ers in the Penitentiary at one time during 1885 and 1886, was 1,315; the smallest number, 1,064; and the average for the years, 1,198. There were 565 received in 1885, and 593 received in 1886. Present number, 1,315. There were 142 deaths from disease. The cost of supporting and caring for the entire convict population was, \$386,816.18; appropriation, \$256,282.59; earnings, \$339,680.49. A large part of the earnings was for work done on railroads and other work, for which no cash is received. "It will be seen," says the Governor, "that the mortality is far in excess of what it should be, and demands a remedy. I would respectfully recommend that all dual governments on railroads be abolished, and that all sanitary management and control of the convicts, as to when, how, and how much they shall work, shall be committed exclusively to the attendant physicians, and that these should be selected with special reference to their skill, humanity, and decision of character, etc."

Charitable Institutions.—Regarding these, the Governor says: "The noblest work the State has done is the generous provision she has made for her insane, and her deaf and dumb, and blind, of both races. According to the census of 1880, there were 1,691 white insane in the State, and 437 colored, aggregating 2,128; deducting from this 750, provided for at Raleigh and at Morganton, and 200 at Goldsboro', leaves 1,178 and deducting, if you will, all such as are incurable, there remain unprovided for in our State, without estimating the increase since 1880, not less than 700 helpless insane. . . . These are now scattered throughout the State, in jails and solitary places of confinement, to protect them and their families from the violence of their own hands."

Railroads.—The capital stock of the Atlantic and North Carolina Railroad is \$1,800,000. Of this sum the State owns over two thirds—\$1,266,500. Private stockholders own the remaining one third—\$533,500. The whole amount of indebtedness on this road is \$227,024; of this sum the amount secured by mortgage on the road, at 8 per cent., is \$196,000. The remainder, reduced to a judgment bearing interest at 6 per cent., \$31,024.

The following work was done on the Cape Fear and Yadkin Valley Railroad from March 1, 1884, to Dec. 1, 1886: Number of miles of steel rails laid and completed, 122; number of miles graded in the same time, 81; number of miles yet to grade, including sidings, to Mount Airy, 17. In addition to this, there has been graded and put in operation in North Carolina with free labor 13 miles; graded and ironed the factory branch in Randolph County, 6 miles. The average number of convicts actually employed, for the whole time, on the works, is 166. This road is now looking to Wilmington as its eastern terminus. Within the last two years the Asheville and Spartanburg road has been completed, and 12 miles have been built and 5 graded on the Western North Carolina Railroad.

Phosphates.—Four years ago it was not known that there were any phosphates in the State. The following results of the phosphate survey, conducted by the Agricultural Department, show the present situation: Phosphate-beds lie in belt fifteen to twenty miles wide from the South Carolina line, through Columbus, Bladen, Sampson, part of Pender, through Duplin, part of Jones and Lenoir, to the Neuse river, also in Onslow. Total number of acres explored, 124,98; total pounds of phosphate rock excavated, 75,495; calculated number of tons of phosphate rock in the 124,98 acres, 50,864.58; average tons per acre, 406.98; samples analyzed, 210. This particular 124,98 acres will yield enough phosphate rock to make all of the superphosphates sold in North Carolina in one year.

Oyster-Survey.—In accordance with a resolution of the General Assembly of 1885, a survey of the natural and artificial oyster-beds, together with a general examination of the waters of the State, has been prosecuted by the Department of Agriculture, aided by the Federal Government. An area of 1,307,000 acres has been examined, of which 445,000 acres have been carefully surveyed, and 852,000 generally studied. Of the entire area of 1,307,000 acres, 790,000 acres are reported as possessing, to greater or less extent, the conditions favorable to the growth and cultivation of the oyster, and only needing actual experiment to demonstrate the degree of fitness. Of this area about 10,400 acres are occupied by natural beds, and 2,300 by artificial beds. Under existing laws only a very small area has been utilized.

Political.—Justices of the Supreme and Superior Courts were the only State officers chosen on the general ticket. The Democratic State Convention met in Raleigh on August 25, and nominated the sitting justices of the Supreme Court for re-election. No platform was adopted. The Republican State Executive Committee, on August 11, resolved to hold no State convention, but members of the party, dissatisfied with this action, called a convention to meet in Raleigh on September 22. This convention met at the appointed time, 54 of the 96 counties being represented by 146 delegates out of the 240 constituting a full convention. The delegates were mostly from counties west of Raleigh, and about two thirds of them were white. W. P. Bynum was nominated for Chief-Justice of the Supreme Court, and John W. Albertson and R. P. Buxton for Associate Justices. A new State Executive was chosen. The following are the essential features of the platform adopted:

That we oppose the Democratic policy of employing convict-labor wherever it comes into competition with free labor, and we declare that the result of this policy is to degrade labor, reduce wages, and throw honest workmen out of employment.

That we are heartily in favor of the Blair educational bill, and denounce the Democratic House of Representatives for their failure to pass the same, said bill having been twice passed by a Republican Senate.

That we are in favor of protection: firstly, because we regard it as the least burdensome and most convenient means of raising the funds wherewith to defray the expenses of the Government; and, secondly, because we would willingly extend protection, pure and simple, to every species of home manufacture, thereby encouraging home industry, stimulating the circulation of capital, increasing the capacity for the employment of skilled labor, and, as a consequence, creating so much greater demand in our own markets for the products of the field. We also favor the repeal of the internal-revenue system.

That we oppose the present system of keeping up the public roads, and demand that the road laws shall be amended so as to bear equally upon property and labor.

That we oppose the present system of county government, as unrepresentative, unfair, and subversive of the rights of the people, and therefore demand its repeal.

That the action of the Democratic party through the Legislature in passing laws and enforcing the no-fence system upon the people without consulting the people at the ballot-box upon the overthrow of a custom which has existed from the first settlement of this country, is undemocratic, anti-republican, and no such radical change should be made in the customs of the people without first obtaining their assent at the ballot-box.

That we demand a free ballot and a fair count.

That we cordially invite all citizens, without regard to former political affiliations, who favor the principles herein set forth, to join with us in our efforts to enforce the same in the administration of State and national affairs.

Changes were made in the Republican ticket, so that it finally stood, Ralph P. Buxton for Chief-Judge and J. W. Albertson and V. S. Lusk for Associate Justices of the Supreme Court. On November 2 the Democratic ticket was elected. The vote for Merrimon (Democrat), 117,311, and Albertson (Republican), 94,551, may be taken as the average vote. Republicans were elected to Congress in the Fourth and Fifth Districts, and Democrats in the other seven. In the Legislature of 1887 the Democrats have a majority in the Senate, and the Republicans and Independents together have a majority in the House.

NOVA SCOTIA. In 1884 the Provincial Government invited proposals from railway companies and capitalists for the acquisition and consolidation of the railways between Halifax and Yarmouth. This year an arrangement was made by the Government, and sanctioned by the Legislature, with a syndicate of Canadian and English capitalists, to acquire the Windsor and Annapolis, the Western Counties, and the Windsor Branch (of the Intercolonial) Railways; and to build a line between Annapolis and Digby, in order to complete a through line from Yarmouth to Halifax. The syndicate was also authorized to acquire the Vietaux and Atlantic Railway, and to build lines between Yarmouth and Shelburne, and between Windsor and Truro. The construction of the missing link between Annapolis and Digby, and the consolidation of all the interests in the then unbroken line of railway from Yarmouth to Halifax, is considered to be of vast importance to the interests of the province. The Government's railway policy contemplates a liberal subsidizing of new railways in the province.

Financial.—The revenue for the year ending Dec. 31, 1885, was \$613,026.27, and the expenditures \$620,700.57.

Minerals.—The mineral production of Nova Scotia in 1884 and 1885 was estimated to be as follows:

PRODUCT.	1884.	1885.
Gold, ounces.....	16,079	22,203
Iron-ore, tons.....	54,885	48,129
Manganese-ore, tons.....	802	358
Copper-ore, tons.....	110	...
Lead-ore, tons.....	100	...
Barytes-ore, tons.....	300	738
Antimony-ore, tons.....	600	...
Coal raised, tons.....	1,889,295	1,352,205
Gypsum, tons.....	111,063	87,644
Building-stone, tons.....	780	8,827
Coke made, tons.....	40,053	80,185
Limestone, tons.....	23,567	16,429
Grindstone, etc., tons.....	2,200	2,208

Legislation.—Apart from the important action of the Legislature upon the secession question, the session of 1886 was laborious. One hundred and sixty-seven bills were passed, including an important measure relating to railway extension. A resolution of sympathy with Mr. Gladstone in his efforts to secure home rule for Ireland was carried. As the Assembly had on several occasions affirmed the desirability of abolishing the Legislative Council, and members of the present Government had affirmed that the best way of obtaining that object was by not filling vacancies as they occur, a motion was made that, pending the general elections, it is advisable that no appointments be made to the Council. But the Government opposed the resolution, and it was negatived.

Secession Movement.—On Dec. 18, 1885, the Dominion Government communicated to the Government of Nova Scotia its conclusions with reference to the "better terms" memorial made by joint resolution of the two houses of the Provincial Legislature in 1884. Meanwhile, as reported in the "Annual Cyclopædia" for 1885, the Legislature had taken further action upon this memorial, threatening the withdrawal of the province from confederation if a satisfactory reply from the Dominion Government was not forthcoming.

The reply first makes reference to the complaint in the memorial that the advice of the Imperial Government and a promise of Sir John Macdonald's, in 1868, to modify the financial arrangement made with Nova Scotia at confederation had both been disregarded by the Dominion Government. Touching this, it is pointed out that the promise was kept by the passing of the act 32, 33 Vic., cap. 2, which provides that the sum of \$8,000,000 fixed by the British North America act as the sum on the difference between which and the actual amount of the public debt of Nova Scotia at the time of the union, the province was to be paid 5 per cent. interest per annum, should be increased to \$9,186,756. The \$1,186,756 added was the amount required to bring up the debt from \$25 per capita to \$27.50

per capita, the amount allowed to New Brunswick at confederation; a larger amount having originally been allowed to New Brunswick on account of its then existing and maturing liabilities being greater. The act also granted Nova Scotia an annual allowance of \$82,698 for ten years, that being the equivalent of \$63,000 a year for ten years, granted to New Brunswick, on account of its greater territory and of its having to pay more in proportion to its population than the other provinces for roads and bridges. The reply insists that no adverse inequality now exists with regard to the allowances paid to Nova Scotia. It denies the allegation of the memorial, that the popular discontent with the financial arrangements is more general and more deeply fixed than ever, and claims that in proportion to the money paid by it into the Dominion treasury a larger return is made to Nova Scotia in the way of local expenditure than in any other province, except possibly Prince Edward Island.

To the allegation of the memorial that a notable inequality exists in the customs duty collected in Nova Scotia, as compared with the customs duty collected in Ontario and Quebec, the Dominion Government replies that although the percentage of duty paid on the total imports in 1883, dutiable and free, is apparently greater in Nova Scotia than in Ontario and Quebec, yet the amount of customs duties per head of the population that year is less in Nova Scotia than in any other province in the Dominion except Prince Edward Island. It is pointed out that Nova Scotia imported a larger proportion of beer and spirits than the other provinces; and that the province that imports the largest proportion of goods subject to the higher rates of duties will show a proportionately higher percentage of duty upon its total imports. The inequality is also partly accounted for by the large amount of duty collected on sugar that is imported by the Halifax refineries and consumed in the other provinces.

With regard to the amounts of revenue per capita available for local purposes in Ontario, Quebec, New Brunswick, and Nova Scotia, respectively, the Dominion Government reminds the Provincial Government that had the latter not withdrawn from the credit of the debt account large amounts expended in railway extension and other public works, the amount of the present Dominion subsidy would, with the local resources, be sufficient for all provincial purposes.

To the complaint of the memorial that the amount received from the United States under the fishery award, for privileges conceded American fishermen within the territorial limits of the maritime provinces, was appropriated to the general purposes of the Dominion, the Dominion Government replies that a large sum has been returned to the fishermen of Canada in the form of bounties, of which the people of Nova Scotia received by far the

largest portion. In addition, large sums have been voted for the protection of the shore and river fisheries of the province.

In declining to grant Nova Scotia any further allowance, the Dominion Government expresses the opinion that "to concede the principle which the memorial would urge, that when through exceptional expenditures any of the provinces of the Union become financially embarrassed, it is the part of the Dominion Government to go to their relief, would destroy the whole financial basis of confederation."

The Dominion Government's communication also deals with the question of the Halifax railway debt, which subject was brought up by the Nova Scotia delegates, but does not appertain to the memorial. At the time of confederation, a dispute was pending between the province of Nova Scotia and the city of Halifax, which had paid nothing upon the railway stock assigned to it, on the ground that faith had been broken with the city through the railway's stopping short of Halifax harbor at one end and short of the New Brunswick frontier at the other end. In the arrangements for confederation nothing was said about this debt. But the Dominion Government took over the railways, and the province now demands that the debt shall be considered as one of the assets of Nova Scotia at confederation. The Dominion Government declines to allow the claim, holding that whatever claim exists is one of the province of Nova Scotia against the city of Halifax.

On April 14, 1886, the Legislature adopted another joint address to the Governor-General, setting forth that the reply of his Excellency's Government to the memorial of 1884 had failed to meet the case presented. The address pointed out that the act 32 and 33, Vic., cap. 2, was based simply upon an agreement between the Dominion Government and the late Hon. Joseph Howe and Hon. A. W. McLelan, two public men who had no authority from the Provincial Government; and that therefore the province could not be bound by their action to accept the act as a final settlement. It was also urged that while Nova Scotia was admittedly entitled to the same financial terms as New Brunswick, yet the latter province had received a refund of \$250,000 granted by the province to subsidize a railway from Painsc to the border of Nova Scotia; had been granted, subsequently to the better-terms arrangement, \$150,000 per annum in lieu of the export timber dues, while the lumbermen of the province were relieved of the tax; for all of which Nova Scotia had received no equivalent. The Legislature denied that the Dominion Government was as well qualified as itself to estimate the feeling of discontent prevailing; maintained that, beyond the grants referred to in the Dominion Government's reply, Nova Scotia was fairly entitled to more under the British North America act,

and denied the accuracy of the statement with regard to the excise duties. Admitting that, before the union, while Ontario and Quebec had extensive railway systems, that of Nova Scotia was limited, it declared that the policy of all the provincial governments had been to subsidize railways. Between 1867 and 1884, Ontario expended \$3,466,888 on railways (besides giving \$1,760,000 to municipalities), Quebec spent on railways \$12,662,083; New Brunswick, \$2,880,465; and Nova Scotia only \$1,578,601, of which \$643,543 was given to the Eastern Extension, now forming part of the Intercolonial Railway owned by the Dominion, and most of the remainder was given to "feeders" of the Intercolonial. The Legislature declined to allow the Dominion Government any credit for its expenditure on the fisheries, because, under the British North America act, the Dominion is bound to protect the fisheries; moreover, the Dominion had admittedly received more out of the territorial waters of Nova Scotia, through the appropriation of the Halifax award, than it has cost to protect the fisheries. The Dominion Government was reminded that from 1867 till 1884 it had expended on canals, public buildings, harbors, and rivers, \$44,615,072 in Ontario and Quebec; but on the same class of work in New Brunswick and Nova Scotia, only \$2,276,120 and \$2,127,187, respectively. With regard to the Halifax debt, it was urged that the fact that the citizens of Halifax owned a portion of the Intercolonial Railway, appeared from the public statutes, and therefore no obligation rested upon the province to notify the Dominion Government; further, the province could only transfer its own interest in the line; the claim was an asset of the province at the time of the union and passed to the Dominion under the British North America act, which act could be pleaded in bar to any action by the province against the citizens of Halifax; the principle had been conceded by the Dominion's having refunded \$400,000 to New Brunswick, and about \$8,000,000 to Quebec, on account of roads now held by companies; and, finally, that the Dominion has taken possession of the whole railway, including that portion belonging to the citizens of Halifax, and is deriving revenue therefrom.

The following claims were submitted: That Nova Scotia shall be granted, *pro rata* with the province of New Brunswick: A refund of the Halifax debt, with interest since 1867; a refund of the money advanced by the counties and province to pay railway damages assessed against the several counties of Nova Scotia on account of railway construction; a refund of the subsidy paid by Nova Scotia to the Eastern Extension Railway, which is now owned and operated by the Dominion Government; that this province shall be granted such a sum of money as shall place her on the same footing as Ontario and Quebec, under the act whereby the Dominion assumed in

1873 the debt of \$10,500,000, up to that time charged against the above-named provinces, the provinces of Ontario and Quebec being thus relieved of that charge, while the assets that had been left with them for the purpose of paying the interest on the \$10,500,000 still remained vested in the two provinces, from which they derive a large amount of revenue.

On May 8, no satisfactory reply to this address having been received from the Dominion Government, on motion of the Premier, the House of Assembly passed the secession resolution, moved at the previous session by Mr. Fraser, which will be found in the "Annual Cyclopaedia" for 1885, page 644. At that time an amendment was carried, on the motion of the Premier, in the form of an ultimatum to the Dominion Government. The resolution was now carried by a vote of 15 to 7.

The elections were held on June 15, "secession" dominating over all other issues, and the result was an overwhelming victory for the "Repealers." Thirty-one constituencies were carried by them, leaving only seven seats for the Conservatives. About 60,000 votes were polled, and the majority in favor of secession was about 12,000.

While the feeling in favor of repealing the union between Nova Scotia and the Dominion had taken such a firm hold of the people of the province generally, a movement was on foot in Cape Breton for the secession of that island from the province of Nova Scotia, and its formation into a separate province of the Dominion. A resolution in favor of this was unanimously passed by the County Council of Cape Breton. The principal grievance of Cape Breton is, that the Provincial Government spends nothing on public works in the island. There is a strong Dominion sentiment there, because the people find their principal markets in the old provinces of Canada.

NURSES, TRAINED. In a recent address to the graduating class of the Training-School for Nurses attached to Bellevue Hospital in New York city, Dr. William T. Lusk said: "It is of the old-time nurses that I wish especially to speak to-night. They were, without exception, a hideous crew, callous to suffering, and brutally indifferent to death. Upon my own service, as I recall them, one was addicted to the use of opium; another was decrepit with years and wholly imbecile; and a third I always think of as the embodiment of everything that was wicked, cruel, mean, and mercenary." These words were addressed to an assemblage of intelligent, thoughtful young women, members of the training-school, twenty-four of whom were about to receive their diplomas as graduates, and were ready to enter upon the practice of their profession. At about the same time more than twenty other similar schools in different parts of the United States held similar annual meetings for a like purpose. How it has come to pass that intelligence, skill, neatness, and humanity have been

substituted for the brutality and incompetence of former years, it is the purpose of this article to set forth.

The record of professional nurses prior to the modern movement is not in all respects so gloomy as would appear from Dr. Lusk's brief reference to his own experience. There were in almost every town, certainly in every large city, a few men and women who were worthy of their honorable calling, but they were very few, and their services were so constantly in demand that no physician could count with certainty upon being able to secure them when required. In the great hospitals such nurses were almost unknown, save where the Roman Catholic Sisterhoods were employed; and so desperate were the straits in which hospital-surgeons often found themselves, that the authorities were more than once implored to invoke the aid of the Catholic Church to effect a reform. Such a measure, however, seemed undesirable from a political standpoint, and it was to private enterprise and liberality that success was at last due.

To this day on the Continent of Europe the religious orders hold almost a monopoly of nursing, a system which has its disadvantages as well as its advantages, even in so-called Catholic countries, and which would not at all meet the requirements of England and America. In Paris there are about six hundred Sisters who in the various hospitals superintend the regular hired attendants. These Sisters, while actuated by earnest religious zeal, are still subject to the orders of their ecclesiastical superiors rather than those of the hospital staff, and they have not, as a general thing, received any regular professional training. In Germany some progress had been made fifty years ago, and it was in the "Institute of Deaconesses" at Kaiserswerth, in 1836, that Florence Nightingale finished her early studies and fitted herself for the noble work in the Crimea that made her name immortal and inaugurated the present English system. That war, indeed, was instrumental in giving skilled nurses to the Russians as well as to the allies; for, soon after peace was declared, an order of Sisters of Mercy was created, which has become a beneficent institution throughout the empire. In Germany, too, there are many Sisters of Charity who are constantly engaged in services for the sick; and the great "Kaiserin Augusta Hospital" at Berlin devotes an important branch of its equipment to lectures on nursing for the benefit of all who care to attend. In Prussia the "Albert-Verein" was established under royal patronage at Dresden, whence, after an exacting two years' course, the pupils go to Leipsic for a third year. These nurses are pensioned, if permanently injured by their professional work. When on duty they are paid from 12 to 24 marks a month, and when sent out by the directorate to nurse in private families they receive 3 to 4½ marks a day, and are sent to nurse the poor gratuitously.

In England systematic attempts to train nurses began soon after Miss Nightingale's services in the Crimea had demonstrated the advantages of such training, and Mrs. Elizabeth Fry was one of the first to teach nurses at Guy's Hospital. At present there are training-schools connected with nearly all the principal hospitals in the large cities, and for twenty years there has been one in successful operation at the Sydney Infirmary in New South Wales.

In the United States, so far as is known, Dr. Valentine Seaman, of the New York Hospital, was the first to give systematic instruction. His course consisted of twenty-six lectures on midwifery, including the kindred branches of anatomy, physiology, and the care of children. These lectures were published in New York in the year 1800. In 1838 the Society of Friends opened a "Nurse Society" in Philadelphia; and a few years afterward the Philadelphia Lying-in Charity established a special course of instruction. Up to this time the Catholic Sisterhoods had afforded the only instances of really organized work in this direction; but in 1853 St. Luke's Hospital was founded in New York city, and its nurses were then, and have been ever since, furnished by the "Protestant Episcopal Order of the Holy Communion." The Lutheran churches, too, were among the pioneers in securing stated instruction for nurses.

In America, as elsewhere throughout the world, war has done more to create a class of trained nurses than all other forces combined. The necessity of organization, of discipline, of regular and systematic methods, under the most trying circumstances, taught us the superior value of professional services. Under the Sanitary Commission during the civil war some two thousand nurses from the Lutheran societies above referred to were employed, besides many others who volunteered from all over the Northern States. When the war ended, a nucleus was formed out of which has sprung the present admirable system, with its beneficent promise of increasing usefulness.

The new order of things was not inaugurated without much opposition. Many physicians believed that the little knowledge of medicine and surgery that must of necessity be acquired in any training-school would prove to be a dangerous thing. They seem to have thought that blind obedience, with perhaps a touch of ignorant superstition, would insure better service than the semi-professional equipment ordinarily attainable for most nurses. That there was some foundation for their apprehensions will probably be admitted by every one who is at all familiar with the personal differences of opinion that are apt to prevail even among full-fledged members of the medical profession. It is inevitable that the spheres of nurse and doctor should sometimes clash, but the quarrels will be mainly due to individual peculiarities rather than to any radical fault in the schools, and experience has already

proved that a physician has oftener to thank than to censure his trained assistant.

In most of the training-schools the limit of age is from twenty-five to thirty-five years. All of them provide blank forms of application, substantially as follows: 1. Candidate's name in full and address. 2. Condition in life, single or a widow. 3. Present occupation or employment. 4. Place and date of birth. 5. Height. 6. Weight. 7. Where educated. 8. Are you strong and healthy, and have you always been so? 9. Are your sight and hearing perfect? 10. Have you any tendency to pulmonary complaint? 11. Have you any physical defects? 12. If a widow, have you children? How many? How old? How are they provided for? 13. Where (if any) was your last situation? How long were you in it? 14. Names in full and addresses of two persons to be referred to. State how long each has known you. If previously employed, one of these must be the last employer. 15. Have you read, and do you clearly understand, the regulations? And an examination as to general intelligence and attainments is required. It is of course essential that a nurse shall be able to read average handwriting, and to write a plainly legible hand. At most of the best schools it is the practice to receive approved applicants for one or two months on probation, during which time the superintendent and other members of the management make up their minds as to her natural qualifications. During this period the pupils are lodged and boarded at the expense of the school. They are not expected to wear the uniform, but must come provided with clothing plainly marked, and with dresses that will wash, for use in the hospital. Those who at the end of the probation period have shown themselves fitted for admission as pupil-nurses are required to sign some such agreement as the following: "I hereby agree to remain for two years in the Training-School for Nurses as a pupil-nurse, and to obey the rules of the school and hospital." At the Training-School of Bellevue Hospital, in New York city, the pay for the first year is \$7 a month, and \$12 for the second year. This sum is allowed for dress, text-books, and necessary expenses, and is not intended as wages. Every pupil is, however, required to accept the allowance, in order to discourage social distinctions. Board, lodging, and washing, are furnished in addition. The uniform of this school is a simple dress of blue and white seersucker, white apron and cap, and linen collar. The money allowance and uniform vary with different schools, but are substantially identical in simplicity.

Day-nurses are on duty from 8 A. M. to 8 P. M., with an hour for dinner at midday and additional time for rest or exercise. It has been found necessary, for sanitary reasons, to separate the nurses' dormitories from the hospital, in order to relieve them during their off-duty hours from sights and sounds that prove in-

supportably wearing upon the constitution. The pupils also have a right to one afternoon during the week and to half of Sunday. A yearly vacation of two weeks is allowed. In sickness all pupils have gratuitous care. The course of instruction includes:

1. The dressing of blisters, burns, sores, and wounds; the application of fomentations, poultices, cups, and leeches.
2. The administration of enemas, and use of catheter.
3. The management of appliances for uterine complaints.
4. The best method of friction to the body and extremities.
5. The management of helpless patients; making beds; moving, changing, giving bath in bed; and preventing and dressing bed-sores.
6. Bandaging, making bandages and rollers, lining of splints.
7. The preparing, cooking, and serving of delicacies for the sick.

They will also be given instruction in the best practical methods of supplying fresh air, warming and ventilating sick-rooms in a proper manner; and are taught to take care of rooms and wards; to keep all utensils perfectly clean and disinfected; to make accurate observations and reports to the physician of the state of the secretions, expectoration, pulse, skin, appetite, temperature of the body, intelligence—as delirium or stupor—breathing, sleep, condition of wounds, eruptions, formation of matter, effect of diet, or of stimulants, or of medicines; and to learn the management of convalescents.

The teaching will be given by visiting and resident physicians and surgeons at the bedside of the patients, and by the superintendent, assistant superintendent, and head nurses. Lectures, recitations, and demonstrations will take place from time to time, and examinations at stated periods.

When the full term of two years is ended, the nurses thus trained can choose their own field of labor, whether in hospitals, in private families, or in district nursing among the poor. On leaving the school they will, after passing the final examination, each receive a diploma signed by the Examining Board and by a committee of the Board of Managers.

The following is a list of the principal training-schools for nurses in the United States:

Nurse Training-School of the Woman's Hospital, Philadelphia, Pa.

Training-School for Nurses at the New England Hospital for Women and Children, Boston, Mass.

Training-School for Nurses at Bellevue Hospital, New York.

Connecticut Training-School for Nurses at the Connecticut State Hospital, New Haven, Conn.

Boston Training-School for Nurses at the Massachusetts General Hospital, Boston, Mass.

Training-School for Nurses at Charity Hospital, New York.

New York Hospital Training-School for Nurses.

Hartford Hospital Training-School for Nurses, Hartford, Conn.

City Hospital Training-School for Nurses, Boston, Mass.

Washington Training-School for Nurses, Washington, D. C.

Buffalo General Hospital Training-School for Nurses, Buffalo, N. Y.

Training-School for Nurses at the Rochester City Hospital, Rochester, N. Y.

Brooklyn Training-School for Nurses at the Brooklyn Hospital, N. Y.

Illinois Training-School for Nurses, Chicago, Ill.

Mount Sinai Training-School for Nurses at the Mount Sinai Hospital, New York.

Training-School for Nurses at the Long Island College Hospital, Brooklyn, N. Y.

Mary Fletcher Hospital Training-School for Nurses, Burlington, Vt.

Training-School for Nurses at the Orange Memorial Hospital, Orange, N. J.

Training-School for Nurses at the Charity Hospital, New Orleans, La.

Cincinnati Training-School for Nurses at the Charity Hospital, New Orleans, La.

Charleston Training-School for Nurses at the City Hospital, Charleston, S. C.

Training-School for Nurses at the Johns Hopkins Hospital, Baltimore, Md.

St. Luke's Hospital Training-School, Chicago.

Indianapolis City Hospital, Indianapolis, Ind.

Post-Graduate Hospital Training-School, New York city.

Training-School at the Infirmary, New York city.

St. Luke's Hospital, South Bethlehem, Pa.

Besides these there is every prospect of the

establishment of schools at Cincinnati, Detroit, and elsewhere.

Distinct from the training-schools, and yet intimately connected with them, are the schools of midwifery, of which the following are the principal ones:

Philadelphia Lying-in Charity and Nurse School.

Missouri School of Midwifery, St. Louis, Mo.

New York State School for Training Nurses at the Homeopathic Maternity in Brooklyn, N. Y.

College of Midwifery, New York city.

The aim of all instructors in the various schools is to send out graduates with a high sense of their responsibilities. The confidential nature of their duties is from the first impressed upon them, and the endeavor is made to inculcate a professional code like that which is one of the most honored traditions of the medical fraternity. The cultivation of cheerfulness, or at least all the semblance of it, with the kindred virtues of patience and neatness, are among the details that pupils are never permitted to forget. As a result, the owner of a diploma from any of the best schools is reasonably sure of steady employment at fair compensation, and of the grateful remembrance of hundreds of her suffering fellow-beings.

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OBITUARIES, AMERICAN. **Ackerson, Garret, Jr.**, an American lawyer, born in Pascack, Bergen county, N. J., Sept. 11, 1840; died in Hackensack, N. J., Dec. 23, 1886. He was the eldest son of Judge Ackerson, of the Court of Common Pleas, and was admitted to the bar in June, 1863, practicing in Hackensack until his last illness. In 1866 he was appointed prosecutor, but resigned the office three years later, on account of his health and large private practice. In 1879 he was appointed Judge-Advocate-General of the National Guard of New Jersey, with the rank of colonel, and subsequently a Commissioner of the State Lunatic Asylum, at Morris Plains. The office of Vice-Chancellor of the State was tendered him in 1881, but was declined. He was prominent in Democratic political circles for many years, and performed a great deal of work for his party as chairman of its County Committee, but would never accept candidacy for any political office.

Allen, Robert, an American soldier, born in Ohio, about 1815; died in Geneva, Switzerland, Aug. 5, 1886. He was graduated at the United States Military Academy in 1836, and was appointed a second-lieutenant in the Second Artillery, Aug. 16, 1836; first-lieutenant, July 7, 1838; and captain and assistant-quartermaster, May 11, 1846. He served in the quartermaster's department throughout the Mexican War, receiving the brevet of major, April 18, 1847, for gallant and meritorious conduct in the battle of Cerro Gordo. At the

outbreak of the civil war he held the rank of major. In the volunteer-service he became colonel, Feb. 19, 1862; brigadier-general, May 23, 1863; and brevet major-general, March 13, 1865. He was mustered out Sept. 1, 1866, and accepted the appointment of assistant-quartermaster-general, with the rank of colonel, in the permanent establishment, October 1 following. He served in this capacity until March 21, 1878, when, having completed forty years of service, he was placed on the retired list.

Andrews, Stephen Pearl, an American author, born in Templeton, Mass., March 22, 1812; died in New York city, May 21, 1886. He was educated at Amherst, and after settling in New Orleans, studied law, and became the first counsel of Mrs. Myra Clark Gaines, in her celebrated suits. In 1839 he removed to Texas, where he advocated the abolition of slavery, and converted many to his views. His impetuous and logical eloquence gained him a valuable practice, but his seeming reckless and fanatical opposition to slavery aroused an intense feeling of opposition, and his life was seriously endangered. In 1843 he went to England, hoping that with the aid of the British Anti-slavery Society, he might raise money to pay for the slaves, and make Texas a free State. He was well received, and the scheme was favorably considered; but the project was abandoned. Mr. Andrews then returned to this country, and joined in the anti-slavery movement in Boston. In England, he learned

of phonography, and, after his return, spent seven years in its introduction, being the founder of the present system of phonographic reporting. He came to New York in 1847, and published a series of phonographic instruction-books, and also edited "The Anglo-Saxon" and the "Propagandist," printed in phonetic type, and devoted to phonography and spelling reform. Mr. Andrews spoke several languages, and had some knowledge of thirty. Among his works are "Discoveries in Chinese; or the Symbolism of the Primitive Characters of the Chinese System of Writing, as a Contribution to Philology and Ethnology, and a Practical Aid in the Acquisition of the Chinese Language" (1854) and the "New French Instructor," embodying a new method. When a young man, he announced the discovery of the unity of law in the universe, and to the development of this idea he devoted the last thirty-five years of his life. He asserted that there is an exact science of language, forming a domain of universology, and by its application he evolved a "scientific" language, destined to become universal, which he called "Alwato" (ahl-wah' to). It was so far elaborated that for some years before his death he conversed and corresponded in it with his pupils, and had in preparation a dictionary of Alwato. The philosophy developed from universology he called "integralism." He believed that in it would be found the ultimate reconciliation of the great thinkers of all schools, and the scientific adjustment of freedom and order by a radical regulation of all possible forms of thought, idea, and belief. In 1882 he instituted the "Colloquium," a series of conferences for the interchange of opinions between men of the utmost diversity of religious, philosophical, and political views. Among its members were Rev. Robert Collyer, Dr. Louis Elsberg, Rabbi Huebsch, Rev. Dr. Newman, Rev. Dr. Ryland, and Thaddeus B. Wakeman. Mr. Andrews was a member of the American Academy of Arts and Sciences, of the American Ethnological Society, and for some time was Vice-President of the Liberal Club of New York. Among his numerous contributions to periodicals were "The Great American Crisis," published in the "Continental Monthly" (1863-'64); and "A Universal Language," in the "Continental Monthly" (1864). His works include "Comparison of the Common Law with the Roman, French, or Spanish Civil Law on Entails and other Limited Property in Real Estate" (New Orleans, 1839); "Cost the Limit of Price" (New York, 1851); "The Constitution of Government in the Sovereignty of the Individual" (1851); "Love, Marriage, and Divorce, and the Sovereignty of the Individual, a Discussion by Henry James, Horace Greeley, and Stephen Pearl Andrews" (edited, 1853); "Constitution or Organic Basis of the New Catholic Church" (1860); "The Primary Synopsis of Universology and Alwato" (1871); "Basic Outline of Universology" (1872);

"Primary Grammar of Alwato" (Boston, 1877); "The Labor Dollar" (1881); "Elements of Universology" (New York, 1881); "Ideological Etymology" (1881); "Transactions of the Colloquium, with Documents and Exhibits" (Vols. I and II, 1882-'83); "The Church and Religion of the Future" (1886); and text-books of phonography.

Armstrong, John J., an American lawyer, born in Mineola, L. I., Sept. 6, 1828; died in Jamaica, L. I., Oct. 18, 1886. He was graduated at the Hempstead Seminary, and was admitted to the bar in November, 1849. In 1859 he was elected District Attorney of Queens County, and held the office for six years; and in November, 1865, he was elected County Judge, and was re-elected for three subsequent terms, making an official service of twenty-six years. In 1872 he was appointed a member of the Constitutional Commission, to prepare amendments to the Constitution for submission to popular vote. He was a strong Democrat, a member and elder of the Presbyterian Church, and President for many years of the Long Island Bible Society.

Arnot, John, Jr., an American banker, born in Elmira, N. Y., March 11, 1831; died there, Nov. 20, 1886. His education was received at the Elmira Academy and at private schools. He entered Yale College, but was not graduated. In 1852, the year that his father was elected President of the Chemung Canal Bank, John, Jr., was chosen cashier, which place he held until the time of his death. The bank never elected another president after the death of the elder John Arnot, and his son became virtually its president. He was president of the village of Elmira in 1859, 1860, and 1864, and when the village was made a city in 1864 he was elected its first mayor, and was elected to the same office in 1870 and 1874. He was elected a Democratic representative in Congress in 1882, and re-elected in 1884. In October of the latter year Mr. Arnot was injured by an explosion of gas in the vault of his bank, and for a long time lingered between life and death. Although he afterward attended to his duties, he never recovered from the shock, which produced nervous prostration and its attendant troubles, resulting in his death.

Aspinwall, Lloyd, an American soldier, born in New York city in 1835; died in Bristol, R. I., Sept. 4, 1886. In 1853 he enlisted as a private in the Fourth Regiment of State Artillery, and in the following year was advanced to the staff. While he was taking an active part in the organization of the Twenty-second Regiment the civil war broke out. He responded to the call for troops in 1861, taking the field as lieutenant-colonel of that regiment, and serving with it in that capacity and as colonel during its term of enlistment. He subsequently had charge of the purchase and equipment of vessels that composed the expedition to Newbern, N. C., was an aide to Gen. Burnside at the battle of Fredericksburg, and the bearer

of the first report of that battle to President Lincoln, and was president of a board of officers appointed to revise the Army Regulations. At the close of the war he was elected brigadier-general of the Fourth Brigade, N. G., S. N. Y., and as senior officer was for some time in command of the First Division. At the same time he was President of the State Military Association, and was active in establishing the rifle-ranges as a part of the military system of the State. He was one of the founders of the Army and Navy Club, and was elected its president in 1877. In 1880 Gov. Cornell appointed him engineer-in-chief on his military staff, which place he held throughout that Governor's incumbency.

Athelson, David R., an American lawyer, born in Frogtown, Fayette county, Ky., Aug. 11, 1807; died in Clinton county, Mo., Jan. 26, 1886. He was educated for the bar, and, removing to Missouri in 1830, was admitted to practice that year. In 1834 he was elected to the Legislature of that State, and in 1838 was re-elected. Three years later he was appointed judge of the Platte County Circuit Court, and while serving as such he was appointed United States Senator to fill a vacancy in 1843. He was twice elected to this office, serving at the head of important committees, and for several sessions was President *pro tem.* of the Senate. This office made him President of the United States during Sunday, March 4, 1849, as Gen. Taylor was not sworn into office until the following day. During the slavery debates his sympathies were on the pro-slavery side, and in the Kansas-Nebraska struggle his attitude as a strong pro-slavery man made him conspicuous. In the latter years of his life he was devoted to agriculture.

Baker, William Bliss, an American painter, born in New York city in 1859; died in Hoosic Falls, N. Y., Nov. 20, 1886. He entered the school of the National Academy of Design in 1876, and won an Elliott medal in 1879. He then studied under Albert Bierstadt and M. F. H. de Haas, and developed marked qualities as a painter of landscapes. He was equally felicitous in black and white, water-color, and oil. In 1884 his "Woodland Brook" was awarded the third Hallgarten prize, by a vote of his fellow-exhibitors in the National Academy. His most notable works were: "Hiding in the Haycocks," "A Brook at Evening," "A Pool in the Woods," "Sunrise in New York Harbor," "Fallen Monarchs," "Bright October Morning," "In the Old Pasture," and "Under the Apple-Trees."

Baldwin, John Abel, an American clergyman, born in New York city in 1810; died in Brooklyn, N. Y., Feb. 22, 1886. He was graduated at Yale College in 1829, and at Princeton in 1834; was licensed by the Presbytery of Newark, N. J., 1834; stationed at Flatbush, L. I., in 1836-'52, at Lancaster, Pa., over a German Reformed Church in 1852-'56, at New Providence, N. J., over a Presbyterian Church in

1857-'63, and was subsequently employed as a supply to vacant churches. He took a prominent part in the trial of the Rev. T. De Witt Talmage, D. D., before the Brooklyn, N. Y., Presbytery, and retired several years ago from the cares of active pastoral labor.

Baltes, Peter Joseph, an American clergyman, born in Ensheim, Bavaria, April 7, 1827; died in Alton, Ill., Feb. 15, 1886. He was brought to America when six years old by his parents, who settled in New York State. Having determined to devote his life to the ministry of the Catholic Church, he pursued a classical course of study in New York and at the College of the Holy Cross, Worcester, Mass., and a theological course at the University of St. Mary's of the Lake, Chicago, and the Sulpitian Seminary, Montreal. He was ordained May 24, 1853, and placed on mission duty at Waterloo, from which he was transferred to Belleville, both in the diocese of Quincy, Ill. On the death of Bishop Juncker, Oct. 2, 1868, he was appointed administrator of the diocese, and on Sept. 24, 1869, was chosen bishop. He was consecrated Jan. 23, 1870, being the first Catholic bishop consecrated in that State. The religious orders already in the diocese were largely developed under his administration, and several others were introduced.

Bartlett, John Russell, an American historian, born in Providence, R. I., Oct. 23, 1805; died there, May 28, 1886. In early life he was employed first in a dry-goods store, and then in a bank, rising to the place of cashier in the Globe Bank, Providence, which he held six years. He was one of the founders of the Athenaeum, and a member of the Franklin Society for the Cultivation of Science, before which he occasionally lectured. In 1837 he removed to New York city, where he was engaged in mercantile business until 1849. Fond of literary pursuits, he took an active part in the various learned societies of the city, was corresponding secretary of the New York Historical Society for many years, and was Secretary of the American Ethnological Society, of which he was one of the founders. He was also an honorary member of many of the learned societies in Europe and America. In 1850 he was appointed commissioner to run the boundary-line between the United States and Mexico, in which work he was employed for three years. While on this service he made extensive explorations in Texas, New Mexico, Chihuahua, Sonora, California, and the country now known as Arizona, and upon his return he published a personal narrative of the places visited. In 1855 he removed to Rhode Island, and was elected Secretary of State, to which office he was annually re-elected until 1872. In 1867 he made a visit to Europe, on which occasion he was chosen by the American Antiquarian Society a delegate to the International Congress of Archeology at Antwerp, and by the American Ethnological Society to the International Congress of Anthro-

pology and Prehistoric Archaeology at Paris. In 1872 he again visited Europe, was one of the United States Commissioners to the International Prison Congress at London, and attended its meetings. He devoted much of his time to literary explorations, especially in the fields of archaeology, philology, and bibliography, and was the author and compiler of a large number of books and pamphlets. His most prominent works were: "Reminiscences of Albert Gallatin" (1849); "Bibliography of Rhode Island" (1864); "Bibliotheca Americana" (1865-1870); "Literature of the Rebellion" (1866); "Primeval Man" (1868); and "Dictionary of Americanisms," of which four editions have been published besides a German translation (Leipsic, 1866) and a Dutch (Amsterdam, 1885). His books and pamphlets on the history of the colony and the State of Rhode Island, brought down to include the records of Rhode Island men in the army and navy during the civil war, are models of historical research and conciseness.

Baxter, John, an American lawyer, born in North Carolina in 1819; died in Knoxville, Tenn., April 2, 1886. He was educated for the bar, and years ago his abilities as a lawyer gave him a high reputation in the South. He remained in North Carolina until 1857, when he removed to Knoxville. As a Whig he served several terms both as a member of the Legislature and as Speaker of the House of Representatives, and was appointed one of the special Supreme Court judges soon after his removal to Tennessee. During the civil war he was a Union man, and afterward a moderate Republican. In 1870 he was chairman of the Judiciary Committee of the State Constitutional Convention. Subsequently his appointment to a vacancy on the bench of the United States Supreme Court was strongly urged by prominent Republicans, but without success. In 1877, however, President Hayes appointed him judge of the Sixth Judicial District, which embraces Ohio, Michigan, Kentucky, and Tennessee, and he held that office until his death.

Benjamin, Samuel Nicoll, an American soldier, born in New York city, Jan. 13, 1839; died on Governor's Island, New York harbor, May 15, 1886. He was graduated at the United States Military Academy in 1861, and at once entered upon active service as second-lieutenant of artillery. During the Manassas campaign he took part in the action at Blackburn's Ford and in the battle of Bull Run, after which he served in the defenses of Washington. In 1862 he was engaged in the Peninsular campaign, participated in most of the seven days' battles, and showed great bravery at Antietam. Later he was placed in command of a battery, and did good service in the Vicksburg campaign. In August, 1863, he was given charge of the reserve artillery of the Ninth Army Corps, and during the East Tennessee campaign was chief of artillery to the corps. In 1864 he served during the Richmond cam-

paign, and was severely wounded at Spottsylvania shortly after receiving his commission as captain for distinguished and gallant conduct. After the war he became Assistant Professor of Mathematics at West Point, and was brevetted lieutenant-colonel for gallant services during the rebellion. Later he served successively in San Francisco, Washington, West Point, and Fort Monroe, until 1875, when he was transferred to the staff and made assistant adjutant-general. In this capacity he served in Washington and in Arizona, and in 1885 became assistant adjutant-general of the Division of the Atlantic, with headquarters on Governor's Island. Col. Benjamin was several times severely wounded, and was one of the few officers that received the congressional medal for bravery on the field. He married a daughter of Hon. Hamilton Fish.

Bennett, Nathaniel, an American lawyer, born in 1816; died in San Francisco, Cal., April 20, 1886. He settled in California in 1849, was admitted to the bar, and rose rapidly in his profession, achieving a wide reputation for his skill in cases that involved large interests and much litigation. He became a justice of the Supreme Court of California, and was subsequently engaged as leading counsel in a number of important suits, the most notable of which, probably, was the celebrated case of Dewey against Flood, Mackey, and O'Brien, in which he was successful in effecting a compromise that produced \$500,000 for his clients, and a fee of \$50,000 for himself. Judge Bennett was a slow, deliberate, pertinacious man, and was esteemed throughout the State as a fine scholar and a lawyer of unusual acumen.

Bicker, Walter, an American soldier, born in New York city, Feb. 9, 1796; died in Far Rockaway, L. I., June 3, 1886. He belonged to an old Dutch family that had been prominent in the State and country through connections with the army and navy, and was himself a captain in the regular army during the War of 1812. About the time of the Mexican War he retired from military service and went into business in New York city. He had an excellent memory and fine literary taste. During the last few months of his life he contributed a series of articles to a religious publication, giving his reminiscences of New York in the olden time.

Blake, Eli Whitney, an American inventor, born in Westborough, Mass., Jan. 27, 1795; died in New Haven, Conn., Aug. 18, 1886. He was graduated at Yale in 1816, after which he studied law with Judge Gould in Litchfield, Conn. The practice of this profession he relinquished at the request of his uncle, Eli Whitney, with whom he became associated in the organization of his arms-factory in Whitneyville. While so engaged he made important improvements in the machinery and processes used in manufacturing arms. In 1825, on the death of Mr. Whitney, he formed a partnership with his brother, Philos Blake,

and continued the business until 1836, when, with another brother, John A. Blake, the firm of Blake Brothers was established. A factory was built at Westville for the manufacture of door-locks and latches, principally of their own invention. Subsequently the business was extended so as to include casters, hinges, and similar articles of hardware, most of which were patented. In this branch of manufacture they were among the pioneers, and they originated many of the characteristic forms of American household hardware. In 1852 Mr. Blake's attention was directed to the great need of a suitable apparatus for crushing stone into fragments of nearly uniform size; and, after five years of study, he produced and patented the Blake stone-breaker, which is now used all over the world, and which for originality, simplicity, and effectiveness has been regarded as almost unique. Mr. Blake was always a student of science, and gave special thought to physics and mathematics. He was one of the founders of the Connecticut Academy of Science, and for several years its president. In 1879 he received the degree of LL.D. from Yale. He contributed valuable papers on technical subjects to various journals, principally the "American Journal of Science," and most of these were published under the title, "Original Solutions of Several Problems in Aérodynamics" (New Haven, 1882).

Bowen, James, an American soldier, born in New York city in 1808; died in Hastings-on-Hudson, N. Y., Sept. 29, 1886. His father, who was a successful merchant, left him an ample fortune. He was a member of several New York clubs, where he was the intimate associate of Moses H. Grinnell, Richard M. Blatchford, James Watson Webb, and Thurlow Weed, and had the reputation of being an authority on literary subjects. He was also intimate with Daniel Webster; and it is related that at one of his dinner-parties, given while he was Secretary of State, Mr. Bowen said to him, "I want you to do me a favor," to which Webster responded, "To the half of my kingdom." Gen. Bowen was the first President of the Erie Railway, continuing in office several years. He was a member of the Assembly in 1848-'49, and first President of the Metropolitan Board of Police Commissioners, established by the law of 1855. He raised several regiments at the beginning of the civil war, and they were formed into a brigade, of which he took command, being made brigadier-general of volunteers, Oct. 11, 1862. After Gen. Banks had succeeded Gen. Butler in command at New Orleans, Gen. Bowen served there as provost-marshal-general of the Department of the Gulf. He resigned on July 27, 1864, and on March 13, 1868, was brevetted major-general of volunteers. In the latter part of his life Gen. Bowen was for many years Commissioner of Charities, to which office he was appointed by Mayor Havemeyer. He was an intimate friend of W. H. Seward.

Brentano, August, an American bookseller, born in the Austrian Tyrol in 1829; died in Chicago, Ill., Nov. 2, 1886. He came to the United States in November, 1853, settling in Brooklyn, N. Y., where he attended the public schools to learn the English language. In the following year he began his business career by selling daily newspapers on the streets of New York city. Through the interest of the late Postmaster Fowler, he was permitted to establish a news-stand at the New York Hotel. Here he acquired many customers, and began taking subscriptions for foreign newspapers and the popular books of the day. From this hotel he went to the Lafarge House, and then to the Smithsonian, on Broadway and Houston Street. In 1860 he took a store on Broadway near Bleeker Street. During the war he issued bulletins whenever news was received from the front. By this time he was keeping a large stock of the leading publications of England, France, Germany, and America, and his importations of books were becoming very heavy. In 1870 he opened a store at No. 33 Union Square, and in 1875 he went to No. 39. This became a fashionable family resort for books and papers, besides supplying the clubs, foreign visitors, and professional men generally. He established branch stores in Washington, D. C., and Chicago, Ill., and in 1877 disposed of his New York store to his nephews, and went to Chicago to reside.

Brickman, Arthur O., an American clergyman, born in Königsburg, Prussia, in 1826; died in Baltimore, Md., Jan. 5, 1886. He was a son of Dr. Arthur Brickman, one of the most prominent German physicians of his time, said to have been related to the royal family. He studied in the University of St. Petersburg, Russia, but was graduated at the University of Leipsic, and entered the ministry of the Lutheran Church. Becoming identified with the revolution of 1848, he was exiled from his country, came to America, and settled in Pittsburgh, Pa., where for several years he was pastor of a Lutheran congregation. During the civil war he was chaplain of the First Maryland Regiment. A systematic course of reading of Swedenborgian works led him to a close connection with that denomination. For thirty years he published in Baltimore, in the German language, a semi-monthly called "Der Bote der Neuen Kirche," devoted to Swedenborgian interests. He was an accomplished linguist, reading, writing, and speaking nine languages. He translated the New Testament from the Chaldaic into English, and was the author of several works on religious subjects.

Britton, Winchester, an American lawyer, born in North Adams, Mass., April 9, 1826; died in Brooklyn, N. Y., Feb. 13, 1886. He attended the Troy (N. Y.) Conference Academy, and when twenty-one years old entered Union College, subsequently becoming a student in John Van Buren's law-office, and taking a course of lectures at the Cherry Valley Law-School.

Too close application to study seriously impaired his health, and he sought restoration in the gold-mines of California. He acquired considerable wealth during the mining-fever, but lost it in a fire in San Francisco, where he had made large investments in real estate. While in California he was an unsuccessful candidate for the Legislature, but served San Francisco one term as alderman. On the loss of his property he returned to New York, resumed his studies, and was admitted to the bar. In 1870 he removed to Brooklyn, and in the following year was elected District Attorney of Kings County. He was removed from office by Gov. Dix, upon charges of malfeasance, but was a successful candidate for re-election at the next election. He had a lucrative practice.

Brooks, Erastus, an American journalist, born in Portland, Me., Jan. 31, 1815; died in West New Brighton, S. I., Nov. 25, 1886. His father died when the boy was eight years old, and he was sent to Boston to earn his living, and became clerk for a grocer there, at the same time attending an evening-school. He then became a printer's errand-boy, and afterward published a newspaper called "The Yankee" at Wiscasset, Me., serving at once as editor, publisher, compositor, press-boy, and carrier. Leading articles, essays, and stories were composed as he set the types, without the intervention of manuscript. In addition to this, he prepared himself for college, entered Brown University, and remained there for some time, but was not graduated, and then became principal of a grammar-school at Haverhill, Mass. He also returned to journalism, buying part of the Haverhill "Gazette." He finally sold out to John G. Whittier, and in 1836 became Washington correspondent of the New York "Daily Advertiser," and of several New England papers. In the same year he became joint editor and proprietor of the New York "Express," with his brother, James Brooks, who had just established that paper. Erastus Brooks was its Washington correspondent for sixteen successive sessions of Congress, and in 1843 wrote letters to it from abroad. He was in the New York State Senate in 1853-'57, and by his support of the bill divesting Roman Catholic bishops of the title to church property in real estate became involved in a discussion with Archbishop Hughes, which was afterward published in two rival volumes (New York, 1855). In 1856 he was the unsuccessful candidate of the American party for Governor of New York, but led his party vote by several thousand. He subsequently joined the Democratic party, was a delegate to the State Constitutional Convention in 1867, and in 1871 became one of the Constitutional Commission. In 1878, 1879, and 1881 he was elected to the Assembly, nominated by his party associates for Speaker in each year, and was the leading Democratic member of the Ways and Means Committee. In May, 1880, Mr. Brooks became a member of the State Board of Health. In April, 1886, he delivered

before the New York Legislature, by its invitation, a eulogy on his friend Horatio Seymour.

Butler, George B., an American lawyer, born in New Haven, Conn., in 1809; died in New York city, April 13, 1886. He came to New York early in life, and in 1834 was appointed Deputy Clerk of the Court of Common Pleas, but retired, and formed a law-partnership with Daniel Lord. On the organization of the Hudson River Railroad Company, Mr. Butler became its secretary and legal adviser, but retired on its completion, and became associate editor, and then one of the proprietors, of the "Journal of Commerce." He afterward left the paper in consequence of differences of opinion between himself and his partners on the Missouri question. He was a warm friend of Alexander T. Stewart, and was his attorney from 1859 till 1871. Mr. Butler was one of the earliest members of the Union League Club, and was the founder of the Society for the Protection of American Industry, of which Gen. Grant was first president.

Campbell, John Lyle, an American chemist, born in Rockbridge County, Va., Dec. 7, 1818; died in Lexington, Va., Feb. 2, 1886. He was a grandson of Alexander Campbell, one of the originators of Liberty Hall Academy, an institution that in time became Washington College, where he was graduated in 1843, after which he taught in the male academy in Staunton, and later had charge of an academy in Richmond, Ky. In 1851 he was called to the Robinson professorship of Chemistry and Geology in Washington University, which chair he continued to fill until his death. His vacations for nearly thirty years were devoted to a minute and exhaustive study of the mountain districts of Virginia. Concerning the geology of the Appalachian region, he was for years a leading authority, and prepared valuable reports on the mineral resources of this region. Besides articles on geology, which appeared in the "American Journal of Science," he published "A Manual of Scientific and Practical Agriculture for the School and the Farm" (Philadelphia, 1859); "Geology and Mineral Resources of the James River Valley, Virginia," illustrated (New York, 1882); and, with Dr. W. H. Ruffner, "A Physical Survey in Georgia, Alabama, and Mississippi, along the Line of the Georgia Pacific Railway," illustrated (New York, 1883).

Capen, Nahum, an American author, born in Canton, Mass., April 1, 1804; died in Boston, Jan. 4, 1886. He was educated in the public schools of his native town. At the age of twenty he went to Boston and engaged in the publishing business, which he followed for many years, devoting much of his time to literary pursuits. He was among the first to memorialize Congress on the subject of an international copyright, and a letter from him, published by order of the U. S. Senate, led to the organization of the Census Bureau at Wash-

ington. Besides writing books on history and political economy, he edited the "Massachusetts State Record" from 1847 till 1857, the writings of Levi Woodbury, LL.D., and, to a large extent, the "Annals of Phrenology." He wrote a biography of Dr. J. F. Gall, and edited his works, translated from the French, and a biography of Dr. J. G. Spurzheim, which was prefixed to that scholar's work on physiognomy. In the last part of his life he was engaged in compiling "A History of Democracy," which he had projected many years before. In 1877 the degree of LL.D. was conferred upon him by Washington and Lee University, of Virginia.

Carpenter, Philo, an American pioneer, born in Savoy, Mass., in 1805; died in Chicago, Ill., Aug. 7, 1886. In 1828 he removed to Troy, N. Y., where he learned the drug business. Later he emigrated to the West, and finally made his way to the present city of Chicago, reaching the settlement in a canoe, which was paddled around the head of the lake by two Indians. He landed near where the Douglas monument now stands, and was conducted to Fort Dearborn, where he found Joel Ellis living in a log cabin. He secured a similar structure on Lake Street, near the river, and opened the first drug-store in Chicago. By adding general merchandise to his stock of drugs, he conducted a thriving business, from which he retired in 1842, to give his whole attention to real-estate investments. The development of the city enabled him to amass a handsome fortune. He was always an earnest advocate of education, temperance, religion, and universal liberty, writing and circulating the first total-abstinence pledge in Chicago in 1832, being an early opponent of slavery, and a close friend of John Brown, and serving as a member of the Board of Education. He retired from the latter in 1865, and was honored by having one of the new school-houses named for him.

Chaffee, Jerome B., an American capitalist, born in Niagara County, N. Y., April 17, 1825; died in Salem Centre, N. Y., March 9, 1886. He received an academic education, and in 1846 removed to Adrian, Mich., subsequently settling in St. Joseph, Mo., and Elmwood, Kans., and conducting a banking and real-estate business in both places. In 1860 he went to Colorado, establishing himself in Gilpin County as a banker, and, shortly afterward, as a mining capitalist. He became a member of the Territorial Legislature in 1861, was one of the founders of the city of Denver, and by 1865 it was estimated that he was an owner in 100 different gold and silver mines. He was the largest owner in the "Bobtail Mine," which, for some time, netted \$400,000 a year. In 1865 he became President of the First National Bank in Denver, and the same year, under a popular belief that the Territory was about to be admitted into the Union of States, he was elected as one of the proposed

United States Senators. The Territory not being then admitted, he was elected as its delegate in Congress, and served in that capacity six years. During this period he labored earnestly to secure the admission of the Territory, and when, in 1876, his efforts were successful, he became one of the first Senators, entering the Senate, Dec. 4, 1876, and serving as a member of the committees on Public Lands, on Territories, and on Mines and Mining, and as chairman of the Select Committee to Examine the Several Branches of the Civil Service. After the expiration of his term he became a leading member of the Republican party, and had an influential part in the National Conventions of 1878, 1880, and 1884, being chairman of the National Republican Committee in the latter year. He was one of Gen. Grant's most loyal supporters, and his daughter married U. S. Grant, Jr., in 1881.

Chapin, Doreas, an American philanthropist, born in 1801; died in Springfield, Mass., Nov. 14, 1886. She was the widow of Chester W. Chapin, and, like her husband, was descended from one of the founders of the city of Boston. The family has been prominently identified with the development of Massachusetts. Among her gifts were \$10,000 to the City Library of Springfield, \$3,000 to the Home for the Friendless, \$20,000 to the Cemetery Association for a memorial chapel, \$11,000 for a Unitarian parsonage, and \$23,000 to Amherst College.

Chaplin, Jeremiah, an American author, born in Danvers, Mass., in 1813; died in New Utrecht, N. Y., March 5, 1886. He was a son of Dr. Jeremiah Chaplin, first President of Waterville College. The son was graduated at Waterville in 1833, held pastorates in Bangor, Me., and Newton Centre, Mass., and then removed to Boston, where he engaged in literature. His wife, Jane Dunbar, who died two years before him, wrote numerous successful Sunday-school stories. Mr. Chaplin's most valuable work is a "Life of Henry Dunster," first President of Harvard College, which has been highly praised (Boston, 1872) and his other publications include "The Memorial Hour" (1864), "Riches of Bunyan"; "The Hand of Jesus" (1869), and lives of Rev. Duncan Dunbar (his father-in-law), Charles Sumner, Benjamin Franklin, and Galen.

Chase, Pliny Earle, an American scientist, born in Worcester, Mass., Aug. 18, 1820; died in Haverford, Pa., Dec. 17, 1886. He was graduated at Harvard in 1839, and settled in Philadelphia, where for many years he was engaged in teaching. Later he turned his attention to mercantile pursuits, and devoted his leisure to scientific researches. In 1871 he became Professor of Physics, and subsequently of Languages, in Haverford College, where, at the time of his death, he was acting president. His investigations include: 1. The confirmation of Faraday's conjecture that gravity must be capable of an experimental relation to electricity, magnetism, and the other

forces, so as to bind it up with them in reciprocal action and equivalent effect, which gained for him the Magellanic gold medal of the American Philosophical Society in 1864. 2. Estimate of the mass and distance of the sun, from the influence upon the barometer of the constrained relative motions of the earth and sun. 3. The discovery that "V," which is the ratio between the electrostatic and electromagnetic units, is also the time integral of stellar rotation, thus completing the demonstration of Faraday's conjecture. 4. Extension of planetary and stellar harmonies, so as to show that all the bodies of the solar system are so arranged as to indicate harmonic vibrations in an interstellar elastic medium. 5. Demonstration that the phyllotactic law, which had been extended to planetary cycles, is also operative in the vibrations of chemical atoms. 6. Application of the principle of conservation of areas to all cases of nebular condensation, so as to show that the maximum gravitating acceleration at the center of a stellar system is always determined by luminous undulation. 7. Correction of an error in regard to the density of the luminiferous ether. 8. Correction of an error in regard to the elasticity of the luminiferous ether. 9. Demonstration of the Chase-Maxwell ratio. These and other researches were published in the "Proceedings of the American Philosophical Society," and have also appeared in the transactions of the Royal Society, the French Academy and elsewhere. He was a member of scientific societies both at home and abroad, and was Vice-President of the American Philosophical Society. Prof. Chase published "Elements of Arithmetic"; "Common-School Arithmetic," and "Elements of Meteorology" (Philadelphia, 1884).

Cheatham, Benjamin Franklin, an American soldier, born in Davidson County, Tenn., in 1819; died in Nashville, Tenn., Sept. 4, 1886. He was educated in Nashville, and after spending a year in mercantile pursuits in Philadelphia, he returned South and took charge of his father's farm. At the first call for volunteers for the Mexican War, he entered the service as captain of the First Tennessee Regiment, with which he participated in the battle of Monterey and the affair at Medelin, on March 25, 1847, displaying great courage on both occasions. He was discharged at the end of the year's term of service, and, returning to Nashville, raised the Third Tennessee Regiment, and with this joined Gen. Scott on his march to the capital, taking part in nearly all the battles around the city of Mexico; and in several as senior colonel, commanding a brigade. He was discharged in July, 1848, and then spent several years in California. At the outbreak of the civil war, he organized, at the request of the Military Board of Tennessee, the whole supply department for the Western army of the Confederacy, and was thus employed till May, 1861, when he was commis-

sioned a brigadier-general. During September, 1861, he was in command at Mayfield, Ky., but fell back when Gen. Grant occupied Paducah. He led three regiments in the battle of Belmont, Nov. 7, 1861, and was afterward placed in command at Columbus, Ky., which he was forced to evacuate during Gen. Grant's victorious march. On the advance of Gen. Bragg into Kentucky, in September, 1862, Cheatham, then a major-general, was placed in command of the Fourth Division of his army, which was actively engaged in the battle of Perryville, Oct. 7, 8, 1862. He commanded a division of Bragg's army at the battle of Murfreesboro', Dec. 31, 1862, and retained the position during the retreat from Tullahoma, and the retrograde movement from Chattanooga, in September, 1863. He also took part in the battles of Chickamauga, Sept. 19, 20, 1863. President Grant tendered him an official appointment, which he declined in a letter of grateful appreciation. He served four years as Superintendent of the Tennessee Prison, and accepted the postmastership of Nashville from President Cleveland a short time before his death.

Chesbrough, Ellis Sylvester, an American civil engineer, born in Baltimore, Md., July 6, 1818; died in Chicago, Ill., Aug. 19, 1886. The boy left school at the age of thirteen, and became chairman of an engineering party in the preliminary survey of the Baltimore and Ohio Railway. After several years' experience in this capacity, he became sub-assistant on the proposed Allegheny and Portage Railroad. In 1831 he did valuable work on the Paterson and Hudson River Railroad. He was sent to South Carolina in 1837 as senior assistant to a corps of seventy engineers, nearly all older than himself, to engage in the construction of the Louisville, Cincinnati, and Charleston Railroad, of which he afterward became resident engineer. In 1846 he was made chief engineer of the western division of the Boston water-works; and in 1850 chief commissioner in the Boston Water Department. From 1851 till 1855 he was city engineer, having charge of all the water-works under the Cochituate Water-Board, besides being the surveyor of the streets and harbor improvements. This office he relinquished, and planned the sewerage system of Chicago, under the direction of the Board of Sewerage Commissioners of that city, becoming chief engineer when the Board of Public Works was organized. The river-tunnels devised by him proved successful, notwithstanding much adverse criticism. In 1879 he became Commissioner of Public Works in Chicago. He was consulted on water questions by the authorities in Boston, Chicago, New York, Memphis, Detroit, and Toronto; and on sewerage, by Boston, Des Moines, Providence, Milwaukee, and other cities. Mr. Chesbrough was a corresponding member of the American Institute of Architects, and President of the Society of Civil Engineers from November, 1877, till November, 1878.

Church, Pharellus, an American clergyman, born in Seneca, N. Y., Sept. 11, 1801; died in Tarrytown, N. Y., June 5, 1886. He was educated in Hamilton, N. Y., and began a course of theological study early in life. His first pastorate was in Poultney, Vt., where he preached for thirty years, and subsequently he had charge of churches in Providence, R. I.; Rochester, N. Y.; and Boston, Mass. About 1854 he withdrew from pastoral labors to enter upon an editorial career. For many years he was one of the editors and proprietors of the "Examiner," and for ten years he edited the "Chronicle," Baptist publications. He was also a frequent contributor to literary magazines, both religious and secular, and was the author of several philosophical and theological works. As a linguist he was highly accomplished, being a ripe Hebrew and Greek scholar, and well versed in modern languages. He was a delegate to the first meeting of the Evangelical Alliance, in London, 1846, and was credited with having originated "The Week of Prayer." His principal works were: "Philosophy of Benevolence," "Seed-Thoughts," a prize essay on "Religious Dissensions," "Antioch," "Memorial of Theodosia Dean," "Templeton," and "Pericles."

Clark, Rufus Wheelwright, an American clergyman, born in Newburyport, Mass., Dec. 17, 1813; died in Nantucket, Mass., Aug. 9, 1886. He was graduated at Yale in 1838, and at the divinity school there in 1841, having previously studied for a time at Andover Theological School. After his ordination, Jan. 7, 1842, he became pastor of the Second Presbyterian Church in Washington, D. C., and subsequently had charges in Portsmouth, N. H.; East Boston, Mass.; and Brooklyn, N. Y. At the time of his death he had been pastor for many years of the First Dutch Reformed Church in Albany, N. Y. The University of New York gave him the degree of D. D. in 1862. Dr. Clark was a brother of Bishop Thomas M. Clark, of Rhode Island. Two other brothers, both clergymen of the Protestant Episcopal Church, are Dr. George H. Clark, of Hartford, and the late Dr. Samuel A. Clark, of Elizabeth, N. J. Dr. Clark was well known as a pulpit orator, and published about 130 books, pamphlets, reviews, and articles. His books include "Lectures to Young Men" (2 vols., Washington, 1842); "Review of Moses Stuart's Pamphlet on Slavery" (1850); "Memoir of Rev. John E. Emerson" (Boston, 1851; abridged edition, 1852); "Heaven and its Scriptural Emblems" (1853); "Life Scenes of the Messiah," and "Romanism in America" (1854); "The African Slave-Trade" (1860); "Heroes of Albany" (Albany, 1867); "The Bible and the School Fund" (Boston, 1870); and a description of the work of Moody and Sankey. He was also the author of about a dozen Sunday-school text-books.

Clark, William Smith, an American educator, born in Ashfield, Mass., July 31, 1826; died in

Amherst, March 9, 1886. He was graduated at Amherst College in 1848, after which he taught the natural sciences in Williston Seminary, East Hampton, where he had been prepared for college. In 1850 he went to Europe, and studied chemistry and botany in the University of Gottingen, where, in 1852, he received the degree of Ph. D. On his return to this country, he was elected to the professorship of Chemistry, Botany, and Zoölogy, in Amherst, and discharged the duties of that chair until 1858, after which, until 1867, he was Professor of Chemistry only. At the beginning of the civil war he volunteered, and was made major of the Twenty-first Massachusetts Infantry. He served with the Army of the Potomac, and participated in the battles of Chantilly, Antietam, and Fredericksburg, receiving his commission as colonel in May, 1862. In September of the same year he was recommended by Gen. Burnside "for a well-deserved promotion" as brigadier-general. During 1863 he resumed his lectures, continuing them until 1867, when he became President of the Massachusetts Agricultural College, and at the same time Professor of Botany and Horticulture. These offices he held until 1879, with the exception of the years 1876 and 1877, which he spent in Japan, where he had been invited by the Government to establish and organize the Imperial College of Agriculture at Sapporo. His botanical knowledge proved of great value in that country, for he was instrumental in introducing into the United States several beautiful shade-trees from Japan. He also sent home a large assortment of seeds, which proved of special value to Massachusetts, on account of the high latitude from which they were selected. He likewise discovered a new lichen, which was named, by Prof. Edward Tuckerman, *Cetraria Clarkii*, in his honor. After his resignation from the Massachusetts Agricultural College, he became interested in the floating college projected by James O. Woodruff. He was made president, and worked with great energy for two years in developing the scheme, which was abandoned on the death of its originator. From 1859 till 1861 he was a member of the Massachusetts State Board of Agriculture, and served *ex-officio* from 1876 till 1879. In 1863 he was appointed on a commission by Gov. Andrew to report on the expediency of establishing a State Military College, and in 1864 he was a presidential elector, and secretary of the electoral college. In 1864, 1865, and 1867, he was a member of the Massachusetts State Legislature. President Clark was a member of numerous scientific societies, and a trustee of several academic institutions. The results of his investigations while a student in Gottingen were published in Liebig's "Annalen," during 1851-'52. He contributed articles to the annual reports of the State Board of Agriculture, and translated for the use of his students Scheerer's "Blow-pipe Manual" (1869).

Coates, Reynall, an American scientist, born in Philadelphia, Pa., in 1802; died in Camden, N. J., April 27, 1886. His parents were Quakers, and his father was widely known for his practical philanthropy, and his mother was an elder in the Society of Friends. He developed a remarkable proficiency in mathematics at an early age; took a course of instruction in medicine and surgery at the Pennsylvania Hospital, and became resident physician of that institution. In 1825 he was appointed Professor of Natural Science in Alleghany College. After making a trip to India, where he prosecuted entomological research, he went on a long cruise as a surgeon in the navy, and collected material for a bulky volume. In December, 1835, he joined the scientific corps of the South-Sea Expedition, and was placed at the head of the department of comparative anatomy; but on the failure of the first expedition he left the service. He drew up the address of the Native American party in 1854, and took an active part in the political canvass of the day. He was formerly widely known as the author of "Leaflets from Memory," which he called a book of prose-poetry, and of the poems "The Gambler's Wife" and "Christian Charity." Latterly he grew very eccentric, and was frequently seen with hundreds of entomological specimens impaled on all parts of his clothing. Many of his contributions to scientific literature were translated into the French, German, Spanish, and Italian languages.

Coffin, Robert Barry, an American author, born in Hudson, N. Y., July 31, 1826; died in Fordham, New York city, June 10, 1886. He was a great-grandson of Alexander Coffin, one of the original proprietors of Hudson, whose great-grandfather, Tristram, the first of the name in this country, emigrated from England in 1605. When very young, Robert began to spend his savings for books, and, at the age of ten, owned a small library. His father died in 1837, and he was then placed in a boarding-school in Richmond, Mass., afterward entering the Poughkeepsie Collegiate School, where he was graduated in 1841. He then studied under private tutors in Hudson, learning also the art of steel engraving, and beginning to contribute anonymously to the press. In 1845-'49 he was book-keeper in a New York importing house, and found time at odd moments to write a series of humorous "Letters from Home" to a Hudson journal, over the signature of "Barry Gray," by which name he afterward became well known. In 1849 he also began to write for the "Home Journal." A severe illness forced him to resign his place, and in 1852 he opened a book-store with his brother in Elmira, N. Y., still contributing to the New York press. In 1854 he turned his attention to theology and wrote for the "Churchman" and other religious papers, intending to take orders in the Episcopal Church. He returned to New York in 1857, and in 1858-'62

was T. B. Aldrich's successor as assistant editor of the "Home Journal," at the same time writing art criticisms for the "Evening Post," many of which afterward appeared in Tucker-man's "Book of the Artists." In 1863-'69 and again from 1875 till shortly before his death, Mr. Coffin was a clerk in the auditor's department of the New York Custom-House. He edited the "Table," a monthly publication devoted to gastronomy, in 1873, and in 1882-'86 contributed regularly on the same subject to the "Caterer," published in Philadelphia. In 1881 he delivered a poem at the reunion of the Coffin family in Nantucket. One of his last pieces was "A Glimpse of Henry Clay, and the Clay Banquets," published in the New York "Tribune" for May 30, 1886. "Barry Gray's" industry was untiring. He had a deep love of nature, and social qualities that endeared him to all who knew him. His books are mostly collections of his humorous pieces written over the signature of "Barry Gray." They include "My Married Life at Hillside," sketches written at his "Hillside Farm," in 1857-'58 (New York, 1865); "Matrimonial Infelicities" (1865); "Out of Town; a Rural Episode" (1866); "Cakes and Ale at Woodbine" (1868); "Castles in the Air" (1871); and "The Home of Cooper and Haunts of Leatherstocking" (1872). He left a completed book in manuscript.

Cooke, John Esten, an American author, born in Winchester, Va., Nov. 3, 1830; died in his home, "The Briars," near Boyce, Clarke County, Va., Sept. 27, 1886. His father, John Rogers Cooke, was a distinguished lawyer of Virginia, and he was a great-grandson of Gov. John Esten, of Bermuda, where his grandfather had been taken as a prisoner during the Revolution. John Esten Cooke passed his early years at "Glengary," his father's country seat at Frederick. He left school at the age of sixteen and studied law with his father, but after practicing about four years, abandoned law for literature. At the beginning of the civil war he entered the Confederate army and served successively in the artillery and cavalry from 1861 till 1864, being on the staff of Gen. J. E. B. Stuart, who had married a cousin of Mr. Cooke. Another cousin, Gen. John R. Cooke, also fought on the side of the South; but his father, Gen. Philip St. George Cooke, uncle to John Esten, was a distinguished officer in the national army. At Appomattox John Esten Cooke was inspector-general of horse artillery in the Confederate army. Mr. Cooke was a voluminous writer. Of late years he did not write as much as formerly, but gave his attention to the education of his three children and the enjoyment of his country place, "The Briars," beautifully situated in the grasslands of the Shenandoah Valley. Most of his works are descriptive of Virginia life, and many deal with the manners and customs of long ago. His war-books are records of personal observation and opinion. His works pub-

lished in book form include "Leatherstocking and Silk; or Hunter John Myers and his Times" (New York, 1854); "The Virginia Comedians; or Old Days in the Old Dominion," a picture of society in the planter class, just before the Revolution (2 vols., 1854); "The Youth of Jefferson" (1854); "Ellie," a novel of town life (Richmond, 1855); "The Last of the Foresters" (New York, 1856); "Henry St. John, Gentleman; a Tale of 1774-'75," a sequel to the "Comedians" (1859); "Life of Stonewall Jackson" (Richmond, 1863); "Stonewall Jackson; a Military Biography," enlarged from the foregoing (1866); "Surrey of Eagle's Nest; or Memoirs of a Staff-Officer serving in Virginia" (1866); "Mohan; or the Last Days of Lee and his Paladins," a sequel to the preceding (1868); "Wearing of the Gray" (1867); "Fairfax," a novel, introducing Lord Fairfax and George Washington (1868); "Hilt to Hilt" (1869); "Out of the Foam," a sensational fiction (1869); "Hammer and Rapier: the Battles of Virginia" (1870); "The Heir of Gaymount," a story (1870); "Life of Gen. Robert E. Lee," written with his concurrence (1871); "Dr. Vandyke," a tale (1872); "Her Majesty the Queen," an historical romance of the English Revolution of 1640 (Philadelphia, 1873); "Pretty Mrs. Gaston, and other Stories" (New York, 1874); "Justin Harley" (Philadelphia, 1874); "Canolles," a tale of the campaign between Lafayette and Cornwallis (Detroit, 1877); "Prof. Pressensee, Materialist and Inventor" (New York, 1878); "Mr. Grantley's Idea" (1879); "Stories of the Old Dominion" (1879); "Virginia Bohemians" (1879); "Virginia; a History of the People" (Boston, 1883); "My Lady Pokahontas" (1884); and "The Maurice Mystery" (1885).

Cooper, James, an American clergyman, born in Boston, Mass., Jan. 2, 1826; died in Detroit, Mich., April 1, 1886. He removed to Cincinnati, Ohio, in 1832; united with the Ninth Street Church in that city by baptism early in 1840, and in the same year entered Woodward College. At the end of two years his health compelled him to suspend his studies, and he temporarily engaged in business. In 1847 he resumed his studies in the preparatory department of the Western Theological Institute at Covington, Ky., and in the following year he went to Granville College (now Denison University), where he was graduated in 1850. He spent the next three years in Newton Theological Institution, and finished the usual course of study. After devoting fifteen months to missionary work in Cincinnati, he was ordained in December, 1854. He was successively pastor at Madison, Wis.; Waukesha, Wis.; Melrose, Mass.; West Philadelphia, Pa.; Rondout, N. Y.; and Flint, Mich.; resigning the latter charge at the call of the American Baptist Home Mission Society, to become its district secretary for Ohio, Indiana, and Michigan. In 1880 he received the degree of D. D. from Denison University.

Croswell, Charles M., an American lawyer, born in Newburg, N. Y., Oct. 31, 1825; died in Adrian, Mich., Dec. 13, 1886. In 1837, upon the death of both parents, he was taken by an uncle to Adrian, and placed at the carpenter's trade. When twenty years old he was elected deputy county clerk, and began the study of law. Three years later he was defeated as the Whig candidate for county clerk. In 1850 he was elected county register, and in 1852 was re-elected. He identified himself with the Republican party in its first days, and was an adherent of it throughout his life. In 1855 he formed a law partnership with Judge Thomas M. Cooley, which continued until 1859, when the latter moved to Ann Arbor. Mr. Croswell was elected Mayor of Adrian in 1862, and in the autumn of that year was elected a State Senator, subsequently serving as chairman of the Judiciary Committee, and as president *pro tem.* He was re-elected to the Senate in 1864 and 1866, was President of the Constitutional Convention in 1867, was an elector-at-large on the Republican ticket in 1868. He was Speaker of the lower house of the Legislature in 1874, and elected Governor in 1876 and 1878.

Cummings, Ebenezer Edson, an American clergyman, born in Claremont, N. H., Nov. 9, 1800; died in Concord, N. H., Feb. 22, 1886. His father was a small farmer, and in the town schools he received his preparatory education. In 1821 he united with the Baptist Church, with a purpose of fitting for the ministry, and he was graduated at Waterville College, Me., in 1828. In September of that year he was ordained pastor of the Baptist Church in Salisbury, N. H., remaining there until called to be pastor of the Baptist Church in Concord, in March, 1832, and there remained until June, 1850. During this pastorate 513 persons united with the church, and the Sunday-school increased from 123 to 292 members. He labored a few months in Newark, N. J., and from November, 1850, his work was pursued at Springfield, Mass., till April, 1852; then to Pittsfield, N. H., till 1854. On Jan. 11, 1854, he was installed over the Pleasant Street Baptist Church in Concord—a new organization of thirty members. He was its first pastor, and remained until April, 1868, during which time there were added 182 members. To the latter date he had accomplished forty years of pastoral labor; later he supplied vacant pulpits in New Hampshire, Vermont, and Massachusetts, until 1881, laboring with sixteen churches, as stated supply, five of which, through his efforts, erected new houses of worship, and thirteen had the way prepared for pastoral settlements, among which were Lebanon, Suncook, Franklin, and Burlington, Vt. The degree of D. D. was given to him in 1855 by Dartmouth College. He was President of Colby Academy, New London, for many years, and was also a trustee of Colby University, Waterville, Me.

Cutter, Stephen, an American philanthropist, born in Woodbridge, N. J., in 1809; died in

New York city, May 9, 1886. At the age of seventeen he left home, and was apprenticed as a ship-joiner to David Halsey, in New York city. After serving for four years, he engaged in business for himself and was so occupied until his retirement in 1856. He then devoted much of his time and means to educational, reformatory, and charitable interests, becoming actively identified with the New York Prison Association, the Wetmore Home, the Home for the Friendless, and the New York Female College in West Fifty-fourth Street, and holding the office of president of the two corporations last named.

Cutts, Richard M., an American naval officer, born in the District of Columbia in 1846; died in San Francisco, Cal., Feb. 2, 1886. He entered the Naval Academy in 1862, and was graduated in 1866. He was on duty on the "Ossipee," North Pacific fleet, in 1867-'68; was promoted to ensign in April, 1868; attached to the "Pensacola," North Pacific station, in 1869; promoted to master, March 26, 1869; commissioned as lieutenant, March 21, 1870; assigned to special duty at Washington, D. C., in 1870; ordered to the receiving-ship "Independence" in 1871; to the Pacific fleet in 1871-'72; to the "Powhatan," North Atlantic station, in 1873; and to the navy-yard at Mare Island, Cal., in 1874. From 1875 till 1879 he was engaged on Coast-Survey duty, serving on the "Hassler" and the "Yukon," and during the ensuing two years he was on the "Monocacy" and the "Ashuelot," on the Asiatic station. His last cruise expired in April, 1882. He was made lieutenant-commander, Oct. 31, 1884, and at the time of his death was on duty at Mare Island Navy-Yard.

Dall, Charles Henry Appleton, an American missionary, born in Baltimore, Md., Feb. 12, 1816; died in Calcutta, British India, July 18, 1886. He was educated at the Franklin and Latin Schools in Boston, delivering the valedictory at the latter institution, after which he was graduated at Harvard in 1839 and at the Cambridge Divinity School in 1840. For a year he was occupied in missionary work in connection with the Unitarian Church in St. Louis, and was there ordained an evangelist in November, 1841. He then returned to the North, and for a time was similarly employed in Baltimore with the Tuckerman mission. In 1846 he spent a year in Portsmouth, N. H., conducting a ministry to the poor, and later accepted a pastorate in Needham, Mass. From 1849 till 1854 he preached in Toronto, Canada. Failing health compelled him to relinquish this charge, and in February, 1855, he sailed for India as the first foreign missionary of the Unitarian Church in America. He made Calcutta his home, and his work thenceforth was largely educational. The Mission School of Useful Arts, the first Girls' School for Natives, the first School for Homeless and Friendless Children, and the first Children's Temperance Society were organized by him. He was an

accomplished linguist, and was a member of the American Oriental Society and of the Asiatic Society of Bengal, and a foreign associate of the Hungarian Unitarian Society. Mr. Dall was a frequent contributor to the press, both in the United States and in India. He wrote many tracts, educational and moral, hymns, and devotional poems, and his pamphlets exceed one hundred in number, many of which were several times reprinted in response to a demand from the natives, for whose instruction they were intended. He was also the author of "From Calcutta to London by the Suez Canal" (Calcutta, 1869).

Davis, Joseph A., an American physician, born in Bloomfield, N. J., July 1, 1813; died there, Aug. 4, 1886. He was graduated at Princeton in 1834, and began his medical studies in the office of Charles Davis, M. D., at Elizabeth, N. J., completing the course in that of Joseph Smith Dodd, M. D., at Bloomfield, and receiving his degree from Jefferson College, Philadelphia, in 1838. He at once began practicing in his native town, continuing until within a few weeks of his death. At an early age he manifested a strong interest in the cause of popular education, and chiefly through his individual efforts the first free school in Bloomfield was established in 1849. He served one term as a member of the Board of Freeholders of Essex County, the only political office he was ever willing to accept.

Delany, James J., an American physician, born in Waterbury, Conn., in 1850; died in New York city, April 2, 1886. He was graduated at the College of Physicians and Surgeons, New York, in 1874, and soon afterward entered the Charity Hospital. At the expiration of his term of service there he was appointed resident physician of the Small-pox Hospital on Blackwell's Island, in charge of the New York Board of Health. He served in this capacity for five years, and then resigned and went to Buenos Ayres, South America, with a view of settling there permanently. But the climate not proving congenial to him he returned to New York and began practicing in the upper part of the city, but was soon afterward appointed visiting physician to the Hospital for Nervous Diseases. He was a close student, and a pleasing writer on medical subjects.

De Saussure, Wilmot Gibbes, an American lawyer, born in Charleston, S. C., June 23, 1822; died Feb. 1, 1886. He was a grandson of Chancellor Henry W. De Saussure, of South Carolina, who was also Director of the Mint under Washington. He was graduated at South Carolina College in 1840, studied law, and in 1833 was admitted to the bar. He was for many years in the Legislature, and in December, 1860, commanded the State troops that occupied Fort Moultrie on its evacuation by Major Robert Anderson. He commanded the artillery on Morris Island during the bombardment of Sumter in 1861, and was afterward Treasurer, Adjutant, and Inspector-General

of his State. He was President of the State Society of the Cincinnati, the Charleston Library Society, and the South Carolina Huguenot Society. He published numerous historical addresses, including "The Stamp-Act of Great Britain, and the Resistance of the Colonies," showing that South Carolina, on March 26, 1776, adopted a Constitution by which the royal government ceased to exist there; "The Causes which led to the Surrender of Cornwallis at Yorktown"; "Memoir of Gen. William Moultrie"; and "Muster-Roll of the South Carolina Soldiers of the Continental Line and Militia who served during the Revolution." He also prepared an address on the celebration by the Huguenot Society of America of the bi-centennial anniversary of the revocation of the Edict of Nantes (New York, 1885).

Devereux, John Henry, an American railroad manager, born in Boston, Mass., April 5, 1832; died in Cleveland, Ohio, March 17, 1886. His ancestors were among those who purchased the site of Marblehead, Mass., from the Indians in 1684, and his father was Capt. John Devereux, of the merchant marine. He was educated at Portsmouth (N. H.) Academy, and in 1848 removed to Cleveland, Ohio, where he was construction engineer on several railway lines. In 1852 he went to Tennessee and became prominent in railroad matters there, being resident engineer of the Tennessee and Alabama Railway for eight years, and serving for a time as city engineer of Nashville. At the beginning of the civil war he closed up his affairs and offered his services to the Government, and in the early part of 1862 was directed to make a reconnoissance for a military road in the Shenandoah Valley. On its completion he was made superintendent of military railroads in Virginia, with the rank of colonel, and soon succeeded in bringing order out of the confusion into which they had fallen, notwithstanding the constant assaults of the enemy, the demand for the conveyance of large bodies of troops, batteries, pontoons, and sick and wounded soldiers, and the swarms of peddlers, thieves, and spies that infested the roads. Under his control Alexandria became the center of a system that worked with precision and energy. He was repeatedly complimented for bravery and distinguished services by Gen. Meade and other officers, and on his resignation, in March, 1864, received a letter of thanks from Secretary Stanton. He then returned to Cleveland, where he became Superintendent, and afterward Vice-President of the Cleveland and Pittsburgh, and in 1868 Vice-President of the Lake Shore road. He subsequently became its president, and when all the lines between Buffalo and Chicago were united he was made general manager of the entire system. From 1873 until his death he was president of many important lines. He was a man of great courage, and during the riots of 1871 prevented eight hundred of his men, by his personal influence, in the face of great danger,

from joining the mob. He was an incorporator of the Case School of Applied Science in Cleveland, and a member of many charitable and scientific associations. He was also prominent in the councils of the Protestant Episcopal Church. In June, 1885, he read before the Cullom Interstate Commerce Committee of Congress, in St. Louis, a paper on the railroad interests of the country.

Don, Laura, an American actress, born in Glens Falls, N. Y., in 1850; died in Troy, N. Y., Feb. 10, 1886. At the age of eighteen she went upon the stage, her first appearance being in company with the late John E. Owens. In 1879 she wrote and produced at the Standard Theatre, New York, "A Daughter of the Nile," in which she played a leading part. The piece was well received by the newspaper critics, but failed in popular appreciation. She was a bright, intellectual woman; a pleasing conversationalist, an observant traveler, and a creditable landscape-painter; she had appeared but little on the stage in the past few years, her health not permitting her to play continuously. She was twice married.

Doton, Hosea, an American educator, born in Pomfret, Vt., Nov. 29, 1809; died in Woodstock, Vt., Jan. 17, 1886. He spent his boyhood on his father's farm, and after leaving the common school studied by himself, becoming especially proficient in mathematics. He readily took up his father's work of land-surveying, and taught school in the winter during the years from 1828 to 1846. Shortly after this, he began the work of his life, the training of teachers, which he carried on from 1850 to 1866, adopting the plan of keeping a private school in the spring, and teaching the public school in the winter, with the right to take pupils of his own. In this unpretentious way, Mr. Doton trained about 150 successful teachers, and had great influence on common-school education in his State. In 1867 he left this work to become engineer of the Woodstock Railroad, upon which work had just begun, and held that post until his death. He found time during his teaching to do much surveying, and also made astronomical calculations, first for a register published in Woodstock in 1843-'56, then for Walton's "Vermont Register" from 1858 until his death, and also for the "New Hampshire Register" since about 1876. He kept a meteorological record for eighteen years, making full monthly reports to the Smithsonian Institution in Washington. Mr. Doton was elected to the State Senate in 1865 and 1866, and in the latter year the General Assembly established by law his method of computing annual interest, known as the "Vermont Rule." Mr. Doton was a man of quiet and retiring disposition, but had wonderful success in teaching, and attracted all by the charm of his manner. Norwich University gave him the honorary degree of A. M. in 1845.

Dongall, John, an American editor, born in Scotland, in 1809; died in Flushing, L. I.,

Aug. 19, 1886. He came to America when quite young; settled in Canada, and began life as a clerk, subsequently engaging in the leather business. In 1846 he retired from mercantile life, and founded the "Weekly Witness" newspaper in Montreal. He was a man of aggressive religious convictions, and attempted to neutralize the effects of sensationalism in the newspapers by combining in his publication the news features of current journalism with the religious features of denominational organs. As this venture yielded results satisfactory to him, he began issuing a daily edition in 1861. Leaving his Montreal publications in the editorial care of his eldest son, he came to New York city in 1870, and in the following year established the "Daily Witness" on a similar plan. This had a fluctuating career until 1878, being several times on the verge of suspension, and being saved by contributions of money in answer, Mr. Dougall claimed, to his earnest prayers for financial assistance. In 1878, however, he suspended the daily edition, and issued the "Weekly Witness," which attained a large circulation. He also established the "Northern Messenger," the "Dominion Monthly," "Sabbath Reading," and the "Pioneer," a prohibition paper. He was intensely earnest in all his labors, and frequently found time for service as an evangelist.

Dougherty, John, an American inventor, born in 1803; died in Pittsburg, Pa., Nov. 13, 1886. He invented the portable iron section-boats, and devised the inclined planes over the Allegheny mountains in the days of the old Portage Railroad. He is credited with suggesting the route of the Pennsylvania Railroad, and in 1857 obtained a charter for the Sherman's Valley and Broad Top road, which finally was merged in the South Pennsylvania road. His latest plan was a proposed railroad from Canada to Washington, by way of Buffalo. Mr. Dougherty was one of the most active business men in central Pennsylvania.

Dow, Moses A., an American publisher, born in Littleton, N. H., in 1810; died in Charlestown, Mass., June 22, 1886. In 1824 he left Franconia, where his father was engaged in iron-smelting, and went to Haverhill to learn the printer's trade. A brother had established himself in the printing business in Boston, and in 1829 Moses became foreman in his office. Several years later he established the "Maine Republican" in Saco, and afterward the "Maine Recorder" in Limington; but neither was successful. Then he established the "Boston Museum," with Ossian E. Dodge as editor, and this met the same fate. After various ventures, he brought out the first issue of the "Waverley Magazine," on May 30, 1850. He had a severe struggle to keep the publication alive until the following September, when it began paying its expenses, and from that time it was the source of a handsome income. The publication was filled with stories, narratives, and poetry, of almost exclusively amateur ori-

gin, for which he paid nothing, believing that a gratification of the ambition of young writers to see their productions in print would be sufficient recompense.

Drysdale, Alexander T., an American clergyman, born in Savannah, Ga., about 1840; died in Waukesha, Wis., July 30, 1886. He was educated for the law, and for a time took an active part in politics, publishing a newspaper in Florida. He subsequently took orders in the Protestant Episcopal Church, and after being ordained, served nine years as a missionary in Dalton, Ga., and seven years as rector of Christ Church, in Mobile, Ala. In 1883 he accepted a call to Christ Church, New Orleans, La., the oldest Protestant congregation in that city. A few weeks before his death he was elected Bishop of the Diocese of Easton, Md., and while his congregation were sending congratulations to him at Waukesha, where he had gone for the benefit of his health, they were startled by a telegram announcing his sudden death. He was a man of large learning and ability, and was noted rather for the zeal with which he performed his pastoral duties than for pulpit brilliancy.

Dudley, William Henry, an American physician and surgeon, born in Ireland, in 1811; died in Brooklyn, N. Y., Oct. 9, 1886. He was graduated at the Royal College of Physicians and Surgeons in Dublin in 1833; emigrated to Jamaica, and became Health Officer of Port Maria, and surgeon in the marine hospital in that town, and a Fellow of the King's College of Physicians in Kingston. In 1841 he came to the United States, where, in 1842, he received a diploma from the New York College of Physicians and Surgeons, and in 1843 began practice in the city of Brooklyn. He was one of the founders of the Long Island Hospital, one of the regents, and for a long time treasurer. In 1870 he was elected president of the collegiate department, and the head of the council of the college. He was also one of the curators of the New York Medical College, and a member of the Kings County and the State Medical Societies. For many years he had abandoned private practice, and devoted himself wholly to the interest of the collegiate department of the hospital.

Eastman, Joel, an American lawyer, born in Salisbury, N. H., Feb. 22, 1798; died in Conway, N. H., in 1886. He was fitted for college at the Salisbury Academy and was graduated at Dartmouth in 1824. He studied law with Samuel I. Wells in Salisbury, and with William C. Thompson in Plymouth, and was admitted to the bar in 1827. He then settled in Conway, which was ever afterward his home, and soon achieved a high reputation among the lawyers of his State. He was elected as a Whig to the State Legislature in 1836-'38, and again in 1853-'55. He was nominated by the Whigs for Congress in 1838, but failed of election. In 1839 he was a delegate to the Harrisburg National Convention that nomi-

nated William Henry Harrison for President, and on his return to New Hampshire he participated actively in the canvas. He was appointed United States District Attorney for New Hampshire in 1841, and held that office until the Polk Administration, when he was succeeded by Franklin Pierce. He was made judge of the Probate Court for Carroll County in 1856, and held that office until disqualified by age in 1868. He was nominated by the Republicans for Congress in 1863, but was defeated by Daniel Marcy, by a plurality of eighty. In 1868 he was chosen a presidential elector, after which he partially retired from the active duties of his profession and resided quietly in his home at Conway.

Ells, James, an American clergyman, born in Westmoreland, N. Y., Aug. 27, 1822; died in Cincinnati, Ohio, March 9, 1886. He was graduated at Hamilton College in 1844, pursued his theological studies at Western Reserve and Auburn Seminaries, and was ordained and installed as pastor at Penn Yan, N. Y., by the Presbytery of Geneva in August, 1851. He was settled in Cleveland, Ohio, in 1855-'59 and 1870-'74; in Brooklyn, N. Y., in 1860-'70; in Oakland, Cal., in 1874-'79; and was a professor in the San Francisco Theological Seminary in 1877-'79. In the latter year he was chosen Professor of Homiletics and Pastoral Theology in Lane Theological Seminary. He was moderator of the General Assembly of the Presbyterian Church in the United States at Chicago, Ill., in 1877. In 1861 he received the degree of D. D. from New York University, and in 1881 that of LL. D. from Marietta College.

Ells, Sumner, an American clergyman, born about 1825; died in Chicago, Ill., Jan. 26, 1886. He was installed as colleague to the Rev. Sebastian Streeter, of the First Universalist Church of Boston, Mass., Nov. 11, 1851, and resigned Dec. 25, 1853. In 1864, when the Shawmut Avenue Universalist Church was re-dedicated, he was installed as associate pastor with the Rev. Dr. T. B. Thayer, and held the place until October, 1865. He held pastorate in Lynn and Salem, Mass., Newark, N. J., and Chicago, Ill., first taking temporary charge and afterward becoming the pastor of St. Paul's Church in the latter city, succeeding the Rev. Dr. Ryder. He was the author of several works, among which are "At our Best," "Hints on Preaching," and "A Life of Edward H. Chapin, D. D."

Ely, Nathan C., an American agriculturist, born in Simsbury, Conn., in 1808; died in New York city, May 30, 1886. He came to New York when twenty-one years old, and engaged in distilling. In 1851 he abandoned this, and organized the Peter Cooper Fire-Insurance Company, of which he was made president, holding the place until his death. In 1850 he was elected a member of the Common Council from the Seventeenth Ward in 1854, was re-elected, and in the same year was chosen president of the board. He was also at one

time President of the Board of Supervisors. Mr. Ely was more generally known, however, from his connection with the Farmers' Club, an association of New York business men, who were largely interested in agriculture, as well as from his long identification with the American Institute, having been president of both organizations for many years. Much of the success of the annual fairs of the American Institute was due to his skill as an organizer and an executive.

Fairbanks, Thaddeus, an American inventor, born in Bromfield, Mass., in 1796; died in St. Johnsbury, Vt., April 12, 1886. He received a common-school education, and was associated with his father, a carpenter and miller, for many years. An elder brother, Hon. Erastus Fairbanks, had settled in St. Johnsbury and engaged in the manufacture of stoves and plows. Recognizing the natural inventive skill of his brother, Erastus induced him to remove thither. For a time the brothers confined themselves to stoves and plows, of which Thaddeus invented many styles; but the "hemp-fever" of 1829-'30 turned his attention in another direction, and the first result was the invention of the hemp-dressing machine. As he lived in a district where a great deal of hemp was raised, the difficulty of weighing it by the old-fashioned method suggested the idea of inventing a more convenient kind of scale. He at once gave his attention to the subject, and produced a rude apparatus, which met the approbation of the hemp-growers. After making various improvements, he at last hit upon the principle of leverage, upon which the present platform-scale is based. His invention was patented June 18, 1831, and several reissues were subsequently obtained. The most essential improvements were the employment of the levers only in the construction of the scale, and the use of knife-edge bearings, resting upon plain, polished steel surfaces. The brothers joined their interests and began the manufacture of scales, making, first, a style adapted to the wants of the hemp-growers, then one for weighing hay, and afterward, as the new apparatus rose in popularity, through more than one hundred modifications of the original scale, they produced a style requisite in every possible kind of business, from the most delicate apothecary's balances to weigh-lock scales having a capacity of 250 tons. The greater part of the machinery used in the manufacture of the scales was also designed and made by Thaddeus. The long and short graduating-marks on the scale-beams are made by a beautiful piece of mechanism of his invention, he having discovered that the old process of marking by means of a chisel and mallet lengthened the beam, and therefore created an inaccuracy in weighing. His invention produced a revolution in the mode of weighing throughout the world, and met a practical requirement as much as any known modern modern invention, of whatever char-

acter. Mr. Fairbanks was made a knight of the Imperial Order of Francis Joseph during the Vienna Exhibition of 1873. He built and endowed St. Johnsbury Academy at a cost of \$200,000.

Farley, James Thompson, an American lawyer, born in Albemarle County, Va., Aug. 6, 1829; died in Jackson, Cal., Jan. 22, 1886. He received a common-school education, and when quite young removed to Missouri, and thence, in 1850, to California. After spending some time in mining, he settled in Amador County, studied law, and began practice in 1854. The same year he was elected to the State Assembly as a Whig, and before his term expired was re-elected. At the beginning of the session of 1856 he was chosen Speaker, being the youngest man ever elected to that office in California. In 1857 he joined the Democratic party, with which he affiliated till the close of his life. He was elected a member of the State Senate in 1860, and re-elected, serving eight years in all, and being president *pro tempore* through one session. In 1873 he was the Democratic nominee for United States Senator, when Newton Booth, the Independent candidate, defeated him by four votes. He was successful in 1877, and took the seat in succession to A. A. Sargent, March 18, 1879. In the Forty-seventh Congress he was a member of the committees on Commerce, Naval Affairs, and Post-Offices and Post Roads; and in the Forty-eighth of those on Commerce, Naval Affairs, and Transportation Routes to the Sea-board.

Fenn, Mary, an American editor, born in Clarendon, Orleans County, N. Y., July 17, 1824; died in West Orange, N. J., July 18, 1886. She was graduated at Ingham University, Le Roy, N. Y., in 1845, and two years later she married Samuel G. Love. But in 1855 she was divorced from him, and, believing herself equally free, married Andrew Jackson Davis, the spiritualist. They settled in West Orange, and lived together until three years before her death, when Mr. Davis, alleging a flaw in her divorce, sought to have their marriage annulled, and, as she offered no contest, succeeded. She then resumed her maiden name, Mary Fenn. She was the author of several books and pamphlets, editor of "The Herald of Progress," in 1860-'64, and a member of Sorosis.

Forsyth, John, an American clergyman, born in 1810; died in Newburg, N. Y., Oct. 17, 1886. At different periods in his life he served as pastor in Philadelphia, Pa., and Newburg, N. Y.; as professor in the Theological Seminary of the Associate Reformed Church, at Princeton, and at Rutgers College, New Brunswick, N. J.; and as chaplain and professor in the Military Academy at West Point. He was an invaluable counselor in places of public trust and in ecclesiastical assemblies. His social qualities endeared him to a large circle of friends in this country and in Great Britain.

France, Robert H., an American actor, born in Ireland in 1805; died in New York city,

Aug. 9, 1886. He received a college education, and early in life determined to make the stage his profession. He made his first appearance, as a comedian, in the old Drury Lane Theatre in London. In 1852 he came to America with his wife and family, and found employment in St. Charles Theatre, in the Bowery, New York city, playing old men's parts. He then played an engagement of two years in the Walnut Street Theatre, Philadelphia, Pa., after which he returned to New York city and secured an engagement in the old Bowery Theatre. From this house he went to Barnum's Museum, where he remained six years, and then set out on a tour of the States. He had at various times supported the elder Booth, Mrs. Charles Kean, Charlotte Cushman, and Edward L. Davenport.

Freeman, John D., an American lawyer, born in New Jersey about 1820; died in Cañon City, Col., Jan. 18, 1886. He removed to Mississippi, studied law, was admitted to the bar, was a member of Congress from that State in 1851-'53, and was Attorney-General of the State immediately preceding the civil war. The success of the Vicksburg, Shreveport, and Pacific Railroad was credited to his efforts while he was a member of Congress. He was the author of "Freeman's Chancery Reports," and at the time of his death was a candidate for appointment as United States Marshal for Colorado.

Garnett, Charles F. M., an American engineer, died in Norfolk, Va., March 7, 1836. During the quarter of a century preceding the civil war he was one of the most distinguished civil engineers in the South. His education began at the University of Virginia, and was continued at the School of Engineering in Philadelphia and Boston. In his early youth he was called upon to construct the first railroad in Virginia, that from Petersburg to City Point. He then built the Petersburg and Weldon and the Virginia and Tennessee Railroads, and while engaged in the latter work he was appointed Chief-Engineer of the State of Georgia. From that time until 1854 he was mainly employed in connection with the most prominent works of improvement in the South. He afterward went into the service of Brazil at the special instance and request of Dom Pedro II, and designed and built the first railroad in that country. On his return to the United States he retired to his plantation in Hanover County, Va. During the civil war he was engaged in the Bureau of Engineering at Richmond, with the rank of colonel.

Goodrich, James S., an American editor, born in Auburn, N. Y., in 1842; died there, Jan. 8, 1886. He learned the printer's trade in the office of the Auburn "Morning News." He enlisted in the Seventy-fifth Regiment of New York Volunteers in 1861, and remained in the service till the close of the war, acting in the commissary department of the infantry at Mobile in the early part of 1864, and as captain of heavy artillery at Cape Hatteras in

the latter part. He became city editor of the Syracuse "Courier" in 1871, of the Syracuse "Standard" in 1872, and of the Oswego "Times" in 1875; and was managing editor of the Syracuse "Herald" in 1877-'82, and of the Syracuse "Sunday Times," in which he held a half interest, from January, 1883, till November, 1885.

Gordon, George H., an American soldier, born in Charlestown, Mass., in 1825; died in Framingham, Mass., Aug. 30, 1886. He was graduated at West Point in 1846, and went at once with the army into Mexico, where he served with distinction throughout the war and sustained severe wounds. On returning home, he studied law and was admitted to the bar. He gave up a lucrative practice at the outbreak of the civil war, and went out with the Second Massachusetts Volunteers in 1861. In 1862 he was made a brigadier-general, and in 1865 received the brevet of major-general of volunteers for meritorious conduct on the field of battle. The manner in which he covered Gen. Banks's retreat in Virginia elicited the commendation of high military authorities. At the close of the war he declined an appointment to the permanent establishment of the army, and resumed the practice of law, intermitting it for a short time while holding the place of Collector of Internal Revenue for the Seventh Massachusetts District. Gen. Gordon published "A History of the Second Massachusetts Volunteers."

Graham, William Moffitt, an American politician, born in 1819; died in Middletown, N. Y., Nov. 13, 1886. He was educated at the academies in Montgomery and Ridgebury, and became Teller of the Middletown Bank in 1841, and in 1844 its cashier. After twenty years of service in this institution, he was in 1866 chosen President of the Wallkill Bank. In 1857 he was elected Treasurer of Orange County, and re-elected at the close of his term, serving six years. In 1867 he was nominated by the Democrats for State Senator, and re-elected in 1869, and made chairman of the Committees on Banks and Public Expenditure. While he was senator the last time, the bill establishing the State Homœopathic Asylum for the Insane in Middletown was passed by the Legislature, and he had much to do with shaping and carrying it through. He contributed toward the purchase of the farm on which the asylum is built, and for a time served as one of the trustees. He continued in the presidency of the Wallkill Bank until its failure in 1872. Investigation showed that it had been wrecked by its officers in Wall-Street speculations; \$256,000 of the capital and deposits, and over \$100,000 of the securities left in its vaults for safe keeping, were missing. The cashier fled, but President Graham expressed a willingness to undergo punishment for his share in the transaction, and accordingly was brought to trial for fraud and embezzlement, convicted, and sentenced to ten years in the Albany Penitentiary. When

about half his term had expired, a petition numerously signed by his friends secured his pardon by President Hayes. He returned to Middletown, and soon afterward entered the service of the Homœopathic Asylum for the Insane. The last incident in his career was his candidacy, on the Democratic ticket, for justice of the peace. He polled the party vote, and was defeated by only a small majority.

Graves, Robert, an American manufacturer, born in Dublin, Ireland, in 1820; died in Brooklyn, N. Y., Jan. 5, 1886. He was apprenticed to a manufacturer of wall-paper in his native city, and settled in Brooklyn in 1845, where he established a factory, which in time covered an entire block, and gave employment to nearly 300 persons. He confined himself wholly to his manufacturing interests, taking no part in the political or social affairs of the city. He was twice married, and had nineteen children. He was an enthusiastic collector of paintings, and the possessor of a fortune estimated at \$2,000,000.

Gray, John Perdue, an American physician, born in Half Moon, Pa., in 1825; died in Utica, N. Y., Nov. 29, 1886. He was educated in Bellefonte Academy and Dickinson College, Pa., was graduated in medicine at the University of Pennsylvania in 1848, and was immediately appointed resident physician at the Philadelphia Hospital. From the beginning of his medical studies he devoted particular attention to the brain and its usual disorders. His researches and experiments in this field gave him a wide fame, and his services were much sought, both for the treatment of severe cases of insanity and for expert testimony in legal proceedings. In 1853 he was appointed Superintendent of the New York State Lunatic Asylum, and he retained the place until his death. In 1882 he was nearly killed by a pistol-shot fired by one of his patients. He was a member of the American Association of Medical Editors, of the American Association of Medical Superintendents of Hospitals for the Insane, of the Judicial Council of the American Medical Association, of the American Archaeological Society, an honorary member of the British Psychological Association, of the Italian Freniatrical Society, and of the French Psychological Society, and had been President of the New York State and the Oneida County Medical Societies.

Greene, Charles Gordon, an American editor, born in Boscowen, N. H., July 1, 1804; died in Boston, Mass., Sept. 27, 1886. He was a son of Nathaniel Greene, a lawyer, and a nephew of Samuel Greene, Chief-Justice of the Judicial Court of New Hampshire. At the age of thirteen he began learning the printer's trade, and after working some time in the office of the Boston "Statesman," he went to Taunton, and in 1823 became proprietor of the "Weekly Free Press." A year later he returned to Boston and established the "Spectator," a purely literary paper, re-

suming his connection with the "Statesman" soon afterward. In 1827 he removed to Philadelphia and became associated with James A. Jones in the publication of the "National Palladium," the first paper in the State to advocate the election of Gen. Jackson to the presidency, and in the following spring he was connected with Gen. Duff Green in the management of the "United States Telegraph." He again returned to Boston, became sole proprietor of the "Statesman," and on Nov. 9, 1831, published the first number of a new daily paper, the "Post." Under his administration this paper was very successful. He was its foremost spirit and authority until he was seventy-five years old, when he retired. Mr. Greene had been a member of the Legislature, and an aide on the staff of Gov. Martin, with the rank of colonel; and he had failed of election as mayor, member of Congress, and State Senator.

Gregg, Rollin Robinson, an American physician, born in Palmyra, N. Y., Aug. 19, 1828; died in Buffalo, N. Y., Aug. 4, 1886. The family removed to Adrian, Mich., when he was five years old. In 1849 he began studying medicine with the family physician, and in the following year he returned to Palmyra and continued his studies with Dr. Durfee Chase, his uncle, a homeopathist, subsequently taking courses of lectures in the homeopathic colleges in Cleveland, Ohio, and Philadelphia, Pa., and being graduated at the latter in March, 1853. In May following he removed to Canandaigua, N. Y., where he was engaged in practice until 1861, when he settled in Buffalo, N. Y. In 1869 he established "The Homeopathic Journal," which he edited for two years, when failing health compelled him to abandon it. He was the author of several treatises, and a frequent contributor to the local newspapers, one article on "The Physical Evils of Alcohol" being extensively copied. At the time of his death he was a member (the senior) of the American Institute of Homeopathy, the Erie County Homeopathy Medical Society, the New York State Homeopathy Medical Society, the Homeopathy Medical Society of Western New York, and the International Hahnemannian Association, of which he was president in 1885.

Gregory, Dudley S., an American manufacturer, born in Jersey City, N. J., in 1832; died in New York city, Feb. 15, 1886. His father was one of the most prominent of the public men of New Jersey, and through his manufacturing, railroad, and congressional connections was largely instrumental in developing Jersey City and Hudson County. Dudley S. Gregory, Jr., on the death of his father, inherited a large fortune, and entertained with great hospitality in the family mansion, since converted into the Jersey City Post-Office. He took an active part in political affairs, and was at different times a member of the Jersey City Board of Finance and the State

Assembly, President of the Board of Fire Commissioners, and a colonel in the old State militia. In connection with his brothers he established the steel-works of Gregory & Co., but retired therefrom several years before his death, and subsequently lost much of his fortune. Mr. Gregory was passionately devoted to vocal and instrumental music; organized the choir of the Tabernacle Church, which later became the foundation of the New York Philharmonic Society; and was a frequent and conscientious contributor of criticisms on musical events to the New York "Tribune."

Groesbeck, Abraham, an American pioneer, born in 1815; died in Houston, Tex., Feb. 6, 1886. He was an early settler in Houston, and during the past thirty-five years one of its leading citizens; was a projector of the Houston and Texas Central Railroad, begun in 1853, and formerly vice-president of the company; and was one of the largest landowners in the State, amassing a great fortune. Groesbeck, the capital of Limestone County, was named for him.

Gurney, Ephraim Whitman, an American educator, born in 1828; died in Beverly, Mass., Sept. 12, 1886. He was graduated at Harvard in 1852, and taught in a school in Boston until 1857, when he was appointed a tutor in the college. In 1861 he was appointed Assistant Professor of Philosophy, teaching on that subject one year; in 1863 Professor of Latin; in 1868 Assistant Professor of History; and in 1869 University Professor of History, which place he held at the time of his death. In 1870, on the creation of the office of dean of the college faculty, he was appointed the first incumbent, and held the office until January, 1876, when he resigned and received a leave of absence that he might make a prolonged trip to Europe for his health. As dean he had contrived the methods of the department, established its precedents, and set its standards. It was the unanimous opinion of the governing boards and of his colleagues that by his skillful and successful conduct of the new and growing department of administration he had rendered the college a service that would be of lasting worth. In 1884 Prof. Gurney was appointed a Fellow of the Corporation. In addition to his other duties he had been for some time editor of the "North American Review."

Gutheim, James Koppel, an American Hebrew Rabbi, born in Westphalia in 1815; died in New Orleans in July, 1886. His first ministerial office was at Sendenhorst in 1838. Five years later he removed to New York, and in 1846 he became the pastor of the B'nai Jeshurun congregation at Cincinnati, Ohio. He occupied pulpits in Montgomery, Ala., Columbus, Ga., New York, and New Orleans, officiating in three of the present synagogues of the latter city. He was the first to transplant to the South the Jewish reform movement that attained such important dimensions in the Northern States. He founded, and for a time edited,

the "Jewish Times," translated the fourth volume of Graetz's "Geschichte der Juden," wrote the "Temple Pulpit," and a metrical paraphrase of the book of Psalms, and compiled the "Hymns of the Temple Emanuel." He was a member of the New Orleans Conference of Charities, the Auxiliary Sanitary Association, the Louisiana Historical Society, and the Society of the Red Cross.

Hahn, Michael, an American lawyer, born in Bavaria, Germany, in November, 1830; died in Washington, D. C., March 15, 1886. He was brought to America when a child, and settled in Louisiana, receiving a public-school education in New Orleans and adopting the profession of law. In 1862, while the State was under military rule, he was elected to Congress, and took his seat at the close of the session. In 1864 Mr. Hahn, his congressional colleague, B. F. Flanders, and J. Q. A. Fellows were candidates for Governor of the State. Mr. Hahn represented that portion of the citizens who were in accord with the policy of Gen. Banks, then in command of the Military Department of the Gulf, and was elected. He was inaugurated March 14, taking a specially prepared oath of office. On the following day President Lincoln, by telegraph, invested him with the powers that had been exercised by the military Governor, and on the succeeding one Gov. Hahn issued a proclamation to the sheriffs of the State, directing an election for delegates to a convention to be held for the revision and amendment of the State Constitution in consonance with the reconstruction policy of the Federal Government. From this time until his term expired, in 1868, he was a leading actor in the remarkable political events of his State. At the close of his term the University of Louisiana conferred upon him the degree of LL. D. He became editor of the New Orleans "Republican" in 1867; was a member of the Legislature from 1872 till 1876; was appointed Superintendent of the New Orleans Mint in 1878; and was elected a District Judge in 1879 and 1884, resigning the office in 1885 on being elected a member of the Forty-ninth Congress. He founded the village of Hahnville, in St. Charles County, and made that his home in late years.

Hamilton, Frank Hastings, an American surgeon, born in Wilmington, Vt., Sept. 10, 1813; died in New York city, Aug. 11, 1886. He was graduated at Union in 1830, and began studying medicine with Dr. John G. Morgan in Auburn. During the winter of 1831-'32 he attended a course of lectures at the College of Physicians and Surgeons in Fairfield, N. Y., and received from the Cayuga County Medical Society a license to practice medicine and surgery. After practicing for two years in Auburn, he was graduated at the medical department of the University of Pennsylvania in 1835, and in the same year began a course of lectures on anatomy and surgery in his office in Auburn. In 1839 he was elected Professor

of Surgery in the College of Physicians and Surgeons in Fairfield, and in the following year became Professor of Surgery in the Geneva Medical College. After spending some time in Europe, he settled in Buffalo in 1844, and was appointed surgeon to the Buffalo Hospital of the Sisters of Charity. He was associated with Drs. James P. White and Austin Flint in the organization of the Buffalo Medical College in 1846, and became Professor of Surgery, holding that chair until 1858. Removing to Brooklyn, he accepted the professorship of the Principles and Practice of Surgery in the Long Island Hospital College, and in 1861 became Professor of Military Surgery, Fractures, and Dislocations, and Professor of Clinical Surgery in the Bellevue Hospital Medical College. These he continued to hold until May, 1868, when, on the death of Dr. James R. Wood, he succeeded to the chair of the Principles and Practice of Surgery with operations, which he retained until March, 1875. During the civil war he went to the front as surgeon of the Thirty-first New York Volunteers, and at the first battle of Bull Run had charge of the general field hospital in Centreville. In August, 1861, he was made brigadier-surgeon, and later medical director in Gen. William B. Franklin's division. By order of Gen. George B. McClellan, he was appointed medical director of the Fourth Corps of the Army of the Potomac. In September, 1862, he organized and took charge of the U. S. General Hospital in Central Park, New York, becoming, in February, 1863, Medical Inspector of the U. S. Army, with the rank of lieutenant-colonel. This commission he resigned in 1863, and returned to New York. Subsequent to 1875 he retained his appointment of visiting surgeon to Bellevue Hospital, and was also consulting surgeon to St. Elizabeth Hospital, to the Hospital for the Ruptured and Crippled, and to various city dispensaries. Dr. Hamilton's reputation as a surgeon extended throughout the United States, and his consulting practice was very great. At the time of the assassination of President Garfield, he was called in as consulting physician, and, after approving the treatment pursued by the attending physicians, remained associated with the case. Dr. Hamilton was elected President of the New York State Medical Society in 1855, of the Erie County Medical Society in 1857, of the New York Pathological Society in 1866, of the New York Medico-Legal Society in 1875 and 1876, of the American Academy of Medicine in 1878, of the New York Society of Medical Jurisprudence in 1878 and 1885, and from 1880 till 1884 was Vice-President of the New York Academy of Medicine. In 1868 he was made an honorary associate member of the College of Physicians and Surgeons, and in 1869 received the degree of LL. D. from Union College. He was the inventor of a bone-drill, and also of an apparatus for broken jaw, and invented or modified the apparatus for almost every fracture of long bones, with various in-

struments, in military and general surgery. His publications include, besides several minor works, "Treatise on Strabismus" (Buffalo, 1844); "Treatise on Fractures and Dislocations" (Philadelphia, 1860, seventh edition, 1884), which has been translated into the French and German languages; "Practical Treatise on Military Surgery" (New York, 1861); "The Principles and Practice of Surgery" (1872); and he edited "The Surgical Memoirs of the War of the Rebellion," published in 1871 under the direction of the U. S. Sanitary Commission.

Hamlin, Charles Edward, an American naturalist, born in Augusta, Me., Feb. 4, 1825; died in Cambridge, Mass., Jan. 3, 1886. He was graduated at Waterville College (now Colby University) in 1857, and for six years taught in Brandon, Vt., Bath, Me., and Suffield, Conn. From 1853 till 1873 he was Professor of Chemistry and Natural History in Waterville College, spending his winter vacations in practical scientific studies in the laboratories of Harvard University, first in the chemical department under Prof. J. P. Cooke, and later in zoölogy under Prof. Louis Agassiz. In 1873 he received the appointment of assistant in Conchology and Paleontology in the Museum of Comparative Zoölogy. For a few years he gave instruction in geology and geography; but this he afterward relinquished, giving his entire attention to the work in the museum, declining invitations from Brown University and elsewhere to resume his lecturing. He received the degree of LL. D. from the University of Lewisburg, Pa., in 1873, and in 1880 became one of the trustees of Colby University. Prof. Hamlin published but few papers; the most important of them are "Observations during Visits to Mount Katahdin, Maine"; "A Report of an Examination of Syrian Fossils"; and "The Attitude of the Christian Teacher in respect to Science."

Hand, Samuel, an American lawyer, born in Elizabethtown, Essex County, N. Y., in 1834; died in Albany, N. Y., May 21, 1886. He was the second son of Hon. Augustus C. Hand, who was a member of Congress, a State Senator, a Judge of the New York Court of Errors, and a Judge of the New York Supreme Court in the Fourth Judicial District. Samuel Hand was graduated at Union College, in 1851, studied law in his father's office, was admitted to the bar in Ballston Spa, in 1854, and was in practice with his father until 1859, when he went to Albany and was for a short time associated with John V. L. Pruyn. In 1861 he formed a connection as junior counsel with Peter Cagger and John K. Porter, and when the latter took his seat upon the bench, Mr. Hand became an advocate in the Court of Appeals. In January, 1869, he was appointed the reporter of the court; in 1875 a member of the State Commission on Reform of Municipal Government, and in 1878 a Judge of the Court of Appeals.

Harding, William G., an American stock-breeder, born on Belle Meade farm, near Nashville, Tenn., in 1808; died there, Dec. 15, 1886. At the age of fifteen he left school in Nashville and pursued his education in an academy at Williamstown, Conn., where he had for classmates Gov. Horatio Seymour, of New York, and Gov. Thomas Seymour, of Connecticut. Belle Meade was settled by his father, who removed from Vermont in 1805, and preempted two and a quarter sections of land. On leaving the academy, William became associated with his father in developing the place, and on the death of his father in 1839 he inherited a fine tract, which by successive purchases amounted to 1,400 acres. He continued the improvements instituted by his father, made further additions to the property, and became known as the most successful agriculturist in Tennessee. Both his father and his grandfather were noted as breeders of the blooded horse, and to this industry he gave his attention. He trained and ran his own horses with success, and achieved a wide reputation on the turf. In 1867 he retired from the track, and began his system of annual sales, confining himself to the breeding and sale of thoroughbred horses till the close of his life. His most celebrated stallions are "Enquirer," "Imported Great Tom," "Bramble," and "Luke Blackburn." The live-stock on the farm represented a value of \$250,000.

Hardy, Benjamin Franklin, an American physician, born in Kennebunk, Me., Jan. 28, 1808; died in San Francisco, Cal., Nov. 22, 1886. He was early left an orphan, and was educated at the Friends' boarding-school in Providence, R. I. Subsequently he studied at Haverford College, and was graduated at the medical department of the University of Pennsylvania in 1840. He then became attending physician in Brockley Hospital, Philadelphia, but later settled in New Bedford, Mass., where he soon acquired a large practice. In 1856 he accepted the appointment of court physician, with charge of the marine hospital, in the Hawaiian Islands, and filled these offices for six years. He then removed to San Francisco, where the remainder of his life was spent. Dr. Hardy was the founder of the San Francisco Lying-in-Hospital and Foundling Asylum, incorporated in 1868. The establishment of this institution he regarded as his life-work, and he was its manager, physician, and surgeon, until failing health compelled him to retire a few months before his death.

Harrington, Calvin Sears, an American educator, born in 1826; died in Middletown, Conn., Feb. 16, 1886. Prof. Harrington had been connected with Wesleyan University for upward of twenty-five years, first being in charge of the department of Greek and Latin, but afterward giving his entire attention to Latin. About fifteen years ago he published an edition of the plays of Plautus, which became a standard text-book. He was also the author

of well-known hymns and religious poems. In June, 1886, as his strength would not permit the performance of his duties in the classroom, he was elected professor emeritus.

Harrison, Benjamin Franklin, an American physician, born in North Branford, Conn., April 19, 1811; died in Wallingford, Conn., April 23, 1886. He was graduated at the medical department of Yale in 1836, and settled in Wallingford, where he practiced his profession for fifty years. In 1846 he visited Europe, and spent six months studying in Paris, also visiting hospitals elsewhere. During the civil war he served as surgeon with the Independent Battalion of New York Volunteers, from September, 1862, till March, 1864. Subsequently he was associated with the United States Sanitary Commission, and during the summer of 1864 was sent to South Carolina and Florida. He was prominent in most of the public measures adopted in Wallingford. It was largely through his efforts that water was introduced into the town, and he was urgent in his appeals for beautifying the streets with shade-trees, himself planting many of its elms. For years he was principal of the school board, and was always active in promoting the cause of education. He kept a careful record of the rainfall during thirty years, and made other meteorological observations. Dr. Harrison was a member of several scientific societies, and had been President of the County Medical Society. In 1872 he received the degree of A. M. from Yale, to which institution he bequeathed his medical library.

Hendriksen, Thomas Francis, an American clergyman, born in Kilkenny, Ireland, May 5, 1827; died in Providence, R. I., June 11, 1886. He was educated for the priesthood of the Roman Catholic Church, in McDonald's Academy and St. Kyran's College, in his native city, and the Theological Seminary at Maynooth. He was ordained in Dublin, April 29, 1853, by Bishop O'Reilly, of the Diocese of Hartford, Conn., then visiting Ireland, and on his invitation the young priest came to America. His earliest missions were at the cathedral in Providence, at St. Joseph's, in the same city, at Woonsocket, and at Newport. On Jan. 17, 1854, he was appointed pastor of St. Joseph's, West Winsted, Conn., and on July 5 was stationed at Waterbury, in the same State. He remained in that parish for seventeen years, during which period he built a costly Gothic church, a school-house, and pastoral residence, bought and laid out a cemetery, founded a convent, and served acceptably as a member of the Board of Education of the city. What he accomplished in this parish commanded him to a higher appointment, and when, in 1872, the Diocese of Hartford was divided and the Diocese of Providence created, he was appointed by Pope Pius IX the first bishop of the new diocese, comprising the State of Rhode Island, Bristol, Barnstable, and part of Plymouth Counties, Mass., and the islands of Martha's Vineyard and Nan-

tucket. He was consecrated April 28, 1872. At the time of his death he had nearly completed an imposing cathedral.

Hildburghauser, Hyman, an American philanthropist, born in Bayreuth, Bavaria, in 1812; died in New York city, Jan. 22, 1886. He came to America in 1836, and settling in New York engaged first in the dry-goods and afterward in the general insurance business. He took a leading part in the Hebrew institutions of the city, devoting much of his time and means to their interests; was one of the founders and most earnest supporters of the Hebrew Benevolent Society, and had served as President of the Grand Lodge of the Hebrew Fraternal Order of B'nai B'rith.

Hill, John Boynton, an American lawyer, born in Mason, N. H., Nov. 25, 1796; died in Temple, N. H., May 3, 1886. He practiced law for many years in Bangor, Me., and was the author of the original Maine liquor law. He published histories of Mason, Old Constable, and other localities in his native State.

Hoadley, John Chipman, an American civil engineer, born in Turin, N. Y., Dec. 10, 1818; died in Boston, Mass., Oct. 21, 1886. He began his engineering career in the employ of the State of New York, during 1836, on the survey for enlargement of the Erie Canal, where his ability brought him quick promotion and responsible work. In 1844 he became engineer for the construction and equipment of a number of mills in Clinton, Mass., and devoted himself for four years to the wide range of work necessary to build up a variety of industries, a task that he accomplished with rare success. He then became associated with Jordan McKay in the manufacture of engines and other machinery, in Pittsfield, and in 1852 was appointed superintendent of the Lawrence machine-shop. Subsequently he again turned his attention to the manufacture of machinery. His experience with locomotives led him into an analysis of the dynamical relations that speed bore to the operation of engines, and the result of his investigations, partly theoretical and partly practical, were shown in his invention of the Hoadley portable engine, which was probably the first application of scientific principles to the design of high-speed engines. These soon gained a high reputation and sold extensively throughout the United States. Meanwhile he had become interested in the organization of the Clinton Wire Cloth Company, agent of the New Bedford Copper Company, and of the McKay Sewing-Machine Association, and was one of the founders and President of the Archibald Wheel Company. After 1876 he devoted his attention chiefly to mechanical and engineering questions, serving as an expert on important cases in the courts, and filling responsible places in mechanical exhibitions. During the civil war he was sent to England by the State of Massachusetts, to examine ordnance and fortifications, for the purpose of devising a system of American sea-coast defenses. His

professional work is shown by its influence over a wide range of engineering practice in mill-work, applications of steam, and sanitary engineering, rather than in any massive structures that bear his name as builder. He held various political offices of minor importance, and was for seven years a member of the Massachusetts State Board of Health. Mr. Hoadley was a member of several scientific associations, and a contributor of technical papers to their transactions. One of the most important of the latter was on "American Steam-Engine Practice in 1884," read at the Montreal meeting of the British Association for the Advancement of Science, which was the first step in the polemical engineering papers respecting English and American railway practice.

Hodge, Archibald Alexander, an American theologian, born in Princeton, N. J., July 18, 1823; died there, Nov. 12, 1886. He was the eldest son of the eminent theologian and professor, Charles Hodge, D. D., LL. D., who occupied the chair of Theology in the College of New Jersey for many years. He was graduated at this college in 1841, was a student in the theological department from 1843 till 1847, and a tutor from 1844 to 1846. He served three years as a missionary in Japan, returning home in 1850, and spent several years in pastoral labor in Lower West Nottingham, Md.; Fredericksburg, Va.; and Wilkesbarre, Pa. In 1864 he was appointed Professor of Theology in the Presbyterian Seminary at Allegheny, Pa., and during his incumbency he also officiated as pastor of one of the churches in that city. In 1877 he was appointed associate of his father, the Professor of Didactic and Polemic Theology, at Princeton, and in the following year succeeded him in that chair. He had been a member of the Board of Trustees of the College of New Jersey since 1881, and was for a time one of the editors of the "Presbyterian Review." Prof. Hodge was the author of several works, the most notable being his "Outlines of Theology," which has been used as a text-book in this country and in Great Britain.

Hoe, Richard March, an American inventor, born in New York city, Sept. 12, 1812; died in Florence, Italy, June 7, 1886. He was the eldest of three sons of Robert Hoe, a native of Lancashire, England, who came to New York in 1803, married a sister of Peter Smith, of Westchester, the inventor of a hand printing-press, engaged with the Smith brothers in manufacturing the presses, and, on their death, succeeded to the entire business. Failing health compelled the retirement of the elder Hoe in 1832, and the business passed into the hands of his eldest son and Matthew Smith, a son of his old partner. Like his father, Richard was a skillful mechanic, and was possessed of strong inventive genius. In 1837 he obtained patents in the United States and in England on a new method for grinding circular saws, and began manufacturing them extensively. His attention was mainly given to the printing-press,

however, and in 1846 he perfected a rotary machine, which received the name of "the lightning press." At first it had four cylinders, but these were afterward increased to ten, giving the press a capacity for making 20,000 impressions an hour on one side of the sheet. The idea then occurred to him of printing from a long sheet or web of paper and on both sides of the sheet at one operation. The result of many costly experiments was the Hoe web perfecting-press, which is capable of printing on a continuous roll of paper several miles in length and on both sides of the roll at the same time, and cutting off and folding ready for delivery from 15,000 to 20,000 newspapers in an hour, the paper being drawn through the press at the rate of 1,000 feet a minute. Mr. Hoe employed a large number of workmen, established a thoroughly conducted school for his apprentices in the works, endowed liberally a relief association for the operatives, and encouraged to the utmost any inventive ability in the men about him.

Home, David Douglas, spiritualist, born near Edinburgh, March 20, 1833; died in London, England, June 22, 1886. He came to America when a child, and for many years enjoyed considerable distinction as a spiritual medium, claiming that marvelous phenomena had attended him from infancy. He won many friends by his séances, who readily accorded him all the wonderful powers he announced, even to declaring that they had seen him float in mid-air, materialize disembodied spirits, and raise a piano several feet by simply placing a finger upon it. In 1855 he went to Europe and was well received in England, France, Germany, and Russia, marrying twice, in the latter country, young ladies of high birth. He became a Roman Catholic in 1856, and secretary of the Spiritual Athénæum in London in 1866. His friends claimed that Queen Victoria had given him several private sittings shortly after the death of the Prince Consort, and there is hardly a doubt that Napoleon III invited him twice to exhibit his powers in the Tuilleries. A few years ago several of his alleged miracles were exposed in London, since when he had appeared but little in public.

Howe, William C., an American lawyer, born in East Chester, N. Y., in 1816; died in Sing Sing, N. Y., Jan. 11, 1886. He completed his education at Wells Academy, Sing Sing, and engaged in teaching at Tuckahoe. In 1851 he became editor of the "Hudson River Chronicle," and continued his connection with that paper and the "Register," which succeeded it, until within a year of his death. He had held the office of justice of the peace continuously for twenty-two years, and that of justice of sessions for sixteen, besides serving as an associate justice of the County and Supreme Courts, as president of the village of Sing Sing, and as president of its Board of Education.

Hudson, Henry Norman, an American clergyman, born in Cornwall, Vt., in 1814; died in

Cambridge, Mass., Jan. 16, 1886. At the age of eighteen he was apprenticed to a coach-maker, and in odd hours he read and studied diligently. He was graduated at Middlebury College, Vt., in 1840, and immediately afterward went South and engaged in teaching in various parts of Kentucky and in Huntsville, Ala. While living in the latter place, he began a severe and systematic study of Shakespeare's works, embodying the results of his reading and his opinions in the form of lectures, which he first delivered in Huntsville. These were cordially received by the press and public, and when, in 1844, he went to Boston he met with warm congratulations from Ralph Waldo Emerson, Theodore Parker, and George S. Hilliard. His lectures were repeated in that and other large cities, and their publication in 1848 placed him in the front rank of Shakespearean scholars. Subsequently he took orders in the Protestant Episcopal Church, edited the "Churchman" for three years, and was settled as a pastor at Litchfield, Conn., from 1858 till 1860. He brought out several editions of Shakespeare, edited the "Saturday Evening Gazette," of Boston, for two years, prepared several text-books, and became a lecturer at the Boston University.

Hunt, Ward, an American lawyer, born in Utica, N. Y., June 14, 1810; died in Washington, D. C., March 24, 1886. He was educated at Hamilton and Union Colleges, being graduated at the latter in 1828, and studied law at Litchfield, Conn., under Judge Gould. Subsequently he was Mayor of Utica, a member of the New York Assembly, and a Judge of the New York Court of Appeals from 1865 till 1873, when he was appointed a Justice of the Supreme Court of the United States, succeeding the late Justice Nelson. In the early part of 1879 he was paralyzed on the right side and incapacitated for service, and in 1882 Congress authorized his retirement on a pension. Both Union and Rutgers colleges conferred the degree of LL. D. upon him.

Hunter, David, an American soldier, born in Washington, D. C., July 21, 1802; died there, Feb. 2, 1886. He was graduated at the U. S. Military Academy, and entered the army as a second-lieutenant of infantry in July, 1822. During the ensuing fourteen years he was employed on frontier duty, reaching the rank of captain of dragoons in 1833, and resigning from the army in 1836. Six years later he re-entered the army as paymaster, with the rank of major, serving in that capacity until May 14, 1861, when he was appointed colonel of the Sixth U. S. Cavalry, and, three days afterward, a brigadier-general of volunteers. He commanded a division at the battle of Bull Run, July 21, 1861, during which he was wounded, and in the following month was promoted to the rank of major-general of volunteers. On April 1, 1862, he was placed in command of the army at Port Royal, S. C., and in May he issued the famous order, "All per-

sons heretofore held as slaves in South Carolina, Georgia, and Florida, are declared free forever." This order was almost immediately annulled by President Lincoln, in a special proclamation. In May, 1864, Gen. Hunter succeeded Gen. Sigel in command of the Department of West Virginia; defeated the Confederate Gen. W. E. Jones, at Piedmont, on June 5; and attacked Lynchburg, without success, June 18. On Aug. 21, 1862, the Confederate government declared, that if captured, he should be treated as an outlaw, and any of his officers concerned in arming negroes should be executed as felons, if caught. In the same year he was detailed as president of the Fitz-John Porter court-martial, and in 1865 as president of the military commission that tried the conspirators engaged in the assassination of President Lincoln. He was retired from active service in July, 1865.

Hunter, William, an American diplomatist, born in Newport, R. I., Nov. 8, 1805; died in Washington, D. C., July 22, 1886. After spending three years in the U. S. Military Academy, he resigned on account of impaired health, and went to New Orleans, where he studied law, and the French and Spanish languages, and was admitted to the bar. Removing to Washington, D. C., he was appointed a clerk in the Department of State, by Secretary Van Buren, May 23, 1829. In 1833 he became chief of the bureau in charge of the relations with Spanish America and Brazil; in 1849, claims clerk; in 1852, chief clerk of the department; in 1860, Assistant Secretary *ad interim*; and in 1866, Second Assistant Secretary. He had served under twenty-three Secretaries of State, being on three occasions acting-Secretary, and under sixteen Presidents. His correspondence with consuls, ministers of the United States, and foreign diplomats, during this period, would fill hundreds of volumes. He was known far and wide as a writer of dispatches and diplomatic notes, as well as the author of important state documents that were promulgated over the signatures of the President and his Secretary of State.

Hurd, Nathaniel F., an American builder, born in Bath, N. H., in 1791; died in Montclair, N. J., Dec. 16, 1886. In his early youth he was an enthusiastic militiaman, a thorough drill-master, and a rigid disciplinarian. He served in the War of 1812 with distinction, on the staff of Maj.-Gen. John Montgomery, and attained the rank of major. At the close of the war he removed to the newly discovered iron-fields in Ohio, and, in conjunction with a brother, planned and erected the La Grange Iron furnace. Up to this time the only iron furnaces were those known as the cold-blast charcoal-furnaces. In 1836, Mr. Firmstone went to Ohio from England, taking with him the plans of a hot-blast oven. As no one but himself understood the innovation, the Hurd brothers were applied to by the La Grange managers to undertake the erection of a furnace after

these plans. They engaged to try the experiment, and an agreement was signed by representatives of the three largest furnaces in the neighborhood, by which the expenses were to be shared between them in case the attempt proved failure. The Hurds were successful, however, and erected the first hot-blast oven in the United States, which gave an impetus to the development of the iron industry.

Irwin, William, an American legislator, born in Union Township, Butler County, Ohio, in 1827; died in San Francisco, Cal., March 15, 1886. He was educated at Carey's Academy, near Cincinnati, and at Marietta College, being graduated at the latter in 1848, and spending the next three years teaching in Port Gibson, Miss., and at Marietta College. He began the study of law in Chicago, but, disliking it, went to California in 1852, and, after passing two years in Oregon, settled in Yreka, Siskiyou County, Cal., engaging in mining, lumbering, and publishing a newspaper. In 1861 he entered public life, being elected a member of the Legislature, and was re-elected in the following year. In 1865 he was defeated for county collector. In 1866-'67 he published the "Yreka Union." In 1869 and 1873 he was elected to the State Senate, and was president *pro tem.* during his second term; in 1874, when Gov. Booth, elected to the U. S. Senate, was succeeded by Lieut.-Gov. Pacheco, he became Lieutenant-Governor; and in 1875 he was elected Governor as a Democrat, for the term ending in December, 1879.

Jack, Alexander B., an American clergyman, born in Scotland, in 1834; died in Hazleton, Pa., May 21, 1886. He came to America at an early age, completed his studies for the ministry at the Presbyterian Theological Seminary in Newburg, N. Y., and became pastor of the Union Church in that city when twenty-one years old; in 1869 removed to Danville, Pa., where he remained two years, and then settled in Hazleton. He was a fine pulpit orator.

Jameson, Seán E., an American agriculturist, born in 1835; died in Irasburg, Vt., Jan. 4, 1886. He was a practical agriculturist of wide reputation, and a popular writer on agricultural topics. He had been a member of the Legislature and of the State Board of Agriculture, and also a member and lecturer of the State Grange of the Patrons of Husbandry, with which organization he identified himself from its inception.

Johnson, Rowland, an American abolitionist, born in Germantown, Pa., May 24, 1816; died in West Orange, N. J., Sept. 25, 1886. His parents were members of the Society of Friends, and in early life he was a preacher of that sect. In 1850 he removed to New York city, and engaged in business as a broker and commission-merchant in China and East India goods, occupying premises in Beaver Street for a period of thirty-three years. At the beginning of the abolition movement he became one of its most prominent supporters, and was at

one time the leader of the Anti-slavery party in New York. He was an ardent admirer of William Lloyd Garrison, and co-operated efficiently with him in his great work; was one of the first members of the Union League Club of New York; was a member of the National Silk Association of America; and was active and liberal in works of charity and reform.

Judson, Edward Z. C., an American author, born in Philadelphia, Pa., in 1822; died in Stamford, Delaware County, N. Y., July 16, 1886. His father, a lawyer, undertook to educate him for the bar; but when eleven years old he ran away to sea as a cabin-boy, and in the following year entered the Government service as an apprentice, on board a man-of-war. When only thirteen years old, he rescued the crew of a boat run down by a Fulton ferry-boat in the East River, and for this meritorious conduct President Van Buren sent him a commission as midshipman in the navy. Reporting for duty, he was assigned to the "Levant"; and soon challenged the other midshipmen to fight, for refusing to mess with him because he had been a common sailor. He succeeded in getting seven duels on his hands, from all of which he escaped without a scratch. These events gave him the reputation of being the best shot in the navy. During the civil war he was chief of scouts among the Indians, with the rank of colonel, and received twenty wounds seven of which were sustained in battle. His first effort as story-writer was made in 1838, when his "Captain's Pig" was published in the "Knickerbocker Magazine." He became the editor of a weekly story-paper called "Ned Buntline's Own," and during the Macready riots he was arrested for having incited the outbreak against the tragedian in his paper. For this he was sentenced in September, 1849, to a year's imprisonment on Blackwell's Island, and a fine of \$250. After his release he became a prolific writer, under the pen-name of Ned Buntline, of sensational stories for the weekly papers, producing in all, it was estimated, 400 distinct serials. He was an incessant worker, commanding an average of \$2,000 for a story running through twelve numbers of the "New York Ledger" or the "New York Weekly," and having a pen-income for many years of \$20,000 per annum. He was a temperance man in theory and practice, frequently relieving himself of the strain of story-writing by delivering lectures on the subject. In politics he was an ardent Republican until Mr. Blaine was nominated for the presidency, when he entered the canvass as a supporter of Gov. Cleveland.

Kallish, Isidor, an American clergyman, born in Krotoschin, duchy of Posen, Prussia, Nov. 15, 1816; died in Newark, N. J., May 11, 1886. In his ninth year he was remarkably proficient in Talmudical and Hebrew learning. After studying theology, philology, and philosophy in the Universities of Berlin, Breslau, and Prague, he entered upon his ministerial

career in 1841, delivering his first sermon in his native town. He began his literary career while yet a student, contributing articles in the interest of science and progress to the leading German periodicals and newspapers, particularly the "Orient," the "Breslauer Beobachter," and the "Figaro." The war-like feeling of 1842 evoked from him a patriotic poem, "The War-Song of the Germans," which he dedicated to the Prince of Prussia, now the venerable Emperor of Germany, receiving an autographic letter of thanks in return, besides the gratification of having the words set to music by Director Mueller, of Breslau. His articles published in the German papers in 1848 drew upon him the enmity of the Government, which led him to seek in America the liberty he had unavailingly preached at home. He received a call to officiate as rabbi at Cleveland, Ohio, where he remained several years, and during this period he organized the first conference of rabbis in America, for the purpose of establishing a uniform ritual and prayer-book in the various synagogues throughout the country. This was held in 1855, and was the inception of Reformed Judaism, which he denominated "a Judaism founded on the Bible, with science, reason, and philosophy as monitors and guides." A ritual and common prayer-book, called "Minbag America," largely the work of Dr. Kalisch, was agreed upon, and is now in general use. In the same year he deciphered a Phœnician inscription found near Sidon, which the Syro-Egyptian Society in London had sent to Prof. Gibbs, of Yale College, to have translated. In 1856 he went to Cincinnati, Ohio, where he officiated until the following year, when he removed to Milwaukee, Wis., going thence to Indianapolis, Ind.; Detroit, Mich.; Leavenworth, Kan.; Newark, N. J.; Nashville, Tenn., and returned to Newark in 1875. From 1853 till 1878 he performed an immense amount of literary labor, besides being in charge of some Hebrew congregation continuously from 1850 till 1861. Among his later works were an English translation of "Sepher Yezirah, a Book on Creation, or the Jewish Metaphysics of Remote Antiquity" (1877); a translation of the Hebrew autobiography of Rabbi Jom Tow (1878); a translation of Prof. Menck's "History of the Philosophy and Philosophical Authors of the Jews" (1881); and one of "Ha Tapuach" (the apple), a treatise on the immortality of the soul, ascribed to Aristotle the Stagyrite (1885). After his death, among his manuscripts was found a considerable collection of original Hebrew poems, tales, fables, and translations from German and English poets into Hebrew, which have not yet been printed.

Kelly, John, an American politician, born in New York city, April 21, 1821; died there, June 1, 1886. He received a limited public-school education, was apprenticed to the master's trade when twelve years old, and engaged

in business for himself when twenty-four. He had become quite successful, when, in 1854, he was elected an alderman. From this time until his death he was one of the most noted Democratic politicians in the city. In 1855 and 1857 he was elected a member of Congress, and during his last term was elected Sheriff of the County of New York, and in 1876 he succeeded Andrew H. Green, by appointment, as Controller. His memorable antagonism to William M. Tweed and his followers took shape when he was nominated for Mayor of the city by the Democratic Union against A. Oakey Hall; but, in the midst of a cauass that opened with unequaled bitterness, Mr. Kelly broke down physically and was compelled to go abroad. After an absence of three years he returned in the autumn of 1871, was urged by the best men in the party to undertake the reform of Tammany Hall, and became a vigorous ally of Charles O'Conor, Samuel J. Tilden, and their associates, in the successful struggle against the Tweed Ring. In 1874 he supported Mr. Tilden as candidate for Governor; in 1876 he vainly opposed his nomination by the St. Louis Convention for the presidency. In 1879 he had a quarrel with Gov. Robinson concerning his candidacy for Governor and County Clerk Gumbleton, which resulted in the election of Mr. Cornell as Governor; and in 1883 he attempted to prevent the nomination of Gov. Cleveland as presidential candidate. His last appearance in Tammany Hall was in December, 1884, but the General Committees of 1885 and 1886 re-elected him chairman, although they were aware that his feeble health would necessarily preclude his serving.

Kennion, John Wilberforce, an American evangelist, born in England in 1831; died in Brooklyn, N. Y., Aug. 16, 1886. He studied medicine, received his diploma in his native country, and was for several years attached to the British army as physician and surgeon. On settling in New York city he became a journalist, and followed this calling with varying success until 1875, when, after attending several of Moody and Sankey's revival meetings, he entered upon evangelical missionary work in the lower part of the city, preaching in the streets, and seeking for auditors the poorest and most wretched classes. He organized the Christ Cleft Mission at the foot of Roosevelt Street, and on every Thanksgiving-day distributed turkeys to the poor at various points on the East river.

Kidder, Henry P., an American banker, born in Boston, Mass., Jan. 18, 1823; died in New York city, Jan. 28, 1886. He received his education in the Boston Latin School, and at the age of fifteen began his business career in a dry-goods store in that city, where he remained seven years. In 1847 he took his first lesson in banking in the office of John E. Fair & Brother, and after a service of eleven years he became a partner in the firm. In

April, 1865, on the retirement of the Messrs. Fair, he established the banking-house of Kidder, Peabody & Co. In the early part of 1886 this firm was made the agents in the United States of the Barings in London. Mr. Kidder was one of the board of trustees and also the treasurer of the Boston Museum of Fine Arts from its beginning, and he had been one of the overseers of Harvard College, and for many years was President of the American Unitarian Association.

Kingsbury, Benjamin, an American lawyer, born in Boston, Mass., in 1813; died in Portland, Me., May 13, 1886. He studied law with Robert Rantoul, Jr., and was for some time editor of "Zion's Herald," of the Detroit "Morning Post," and of the "Portland Eastern Argus." He was Surveyor of the Port of Portland from 1844 till 1848, a representative in the Maine Legislature in 1861-'63, being speaker *pro tem.* of the House for some time, judge of the Municipal Court in Portland from 1863 till 1870, and mayor of the city from 1870 till 1873.

Laidley, Theodore Thaddeus Sobieski, an American soldier, born in Guyandotte, Va., April 14, 1822; died in Palatka, Fla., April 4, 1886. He was graduated at the U. S. Military Academy in 1842, standing sixth in his class, and was appointed second-lieutenant in the Ordnance Corps. From 1842 till 1846 he served at the Watervliet, N. Y., Washington, D. C., and Allegheny, Pa., arsenals, and then participated in the war with Mexico. He was engaged in the siege of Vera Cruz, the battle of Cerro Gordo, and in the siege of Puebla, becoming first-lieutenant in March, 1847, and received the brevets of captain and major for his conduct during the war. Subsequently he served successively on ordnance duty in the arsenals at Watervliet, N. Y.; Fort Monroe, Va.; and Charleston, S. C., again in Fort Monroe and Watervliet, and in command of the North Carolina Arsenal from 1854 till 1858, becoming captain in July, 1856. During the civil war he was inspector of powder in 1861-'62, and then was in command of the Frankford Arsenal until 1864, when he became inspector of ordnance, and was given charge of the Springfield Armory until 1866. Afterward he had command of the New York and later of the Watertown Arsenal, becoming colonel in April, 1875. He served on several boards by which scientific tests and experiments were made, principally on that for testing the strength and value of steel and other metals, in 1875. Col. Laidley was retired at his own request in December, 1882, after over forty years of active service. He invented several valuable appliances that are now used in the ordnance department, including an igniter, a laboratory, an artillery forge, and also a cavalry forge. Besides important Government reports, he was the author of "The Ordnance Manual of 1861" and of "Instructions in Rifle Practice" (Philadelphia, 1879).

Lanigan, George Thomas, an American journalist, born on St. Charles River, Richelieu, Canada, Dec. 10, 1845; died in Philadelphia, Pa., Feb. 5, 1886. He received his early education at the Montreal High-School, and then learned telegraphy. For a short time he worked on the Government telegraph lines as an operator, but was soon promoted to the superintendence of an important circuit. During this time he had an intense longing for newspaper work, and the Fenian raid of 1866 gave him an excellent opportunity for beginning work as a correspondent. He sent many long and important dispatches to the New York "Herald" and other papers. Then he went to Montreal, and with Robert Graham and others established the "Free Lance," a satirical and humorous paper, which developed into the "Evening Star," which is still published. After selling out his interest in the "Free Lance," Mr. Lanigan came to the United States, and was engaged on the Chicago "Times." For a few months he wrote bright political paragraphs, and did much to build up the paper and extend its reputation. About 1873 he removed to St. Louis, and became city editor of the "Globe-Democrat." He remained there but a short time, and after severing his connection with that paper took charge of the general Western correspondence of the New York "World." His ability was soon recognized, and he was invited to join the editorial staff of that paper. He remained in New York eight years, and wrote voluminously on a wide range of subjects. His "Fables," which attracted much attention, were published in book-form, "Out of the World" (New York, 1878), and made him famous. On June 18, 1883, he became editor of the Rochester "Post-Express," and in the summer of 1884 he joined the staff of the Philadelphia "Record." Mr. Lanigan was one of the most versatile of American journalists. He handled statistics, politics, foreign affairs, historical questions, and literary matters with surprising readiness and marked ability, and when he chose to write in lighter vein, whether in verse or prose, he was unusually successful. Among his most successful poems are "The Amateur Orlando" and "A Threnody for the Ahkoond of Swat."

Lea, Isaac, an American naturalist and publisher, born in Wilmington, Del., March 4, 1792; died in Philadelphia, Pa., Dec. 8, 1866. His ancestors, John and Hannah Lea, members of the Society of Friends, and "noted and valuable preachers," came from Gloucester, England, with William Penn on his second visit to America. Mr. Lea was the fifth son of James Lea, a wholesale merchant, and was sent to the academy at Wilmington as a student in the classical course, with a view to his entering the medical profession. But when fifteen years old he was placed in the mercantile house of his eldest brother in Philadelphia. Here he became acquainted with the late Prof. Vanuxem, afterward associated in the geological survey of

the State of New York. Young Lea had inherited a taste for botany from his mother; Vanuxem was also interested in natural history; and the two made frequent geological excursions together in the neighborhood. Mr. Lea's first scientific paper was published in 1817; it was "An Account of the Minerals at present known to exist in the Neighborhood of Philadelphia," and appeared in the "Journal" of the Academy of Natural Sciences of Philadelphia. "The American Journal of Science" was established a few months afterward, and he became a frequent contributor to its pages. Mr. Lea's marriage, in 1821, to a daughter of Matthew Carey, publisher and writer on political economy, was followed by his admission as a member of the firm of M. Carey & Sons, which was then considered the largest publishing-house in the United States, a connection with which he maintained, through all the changes it underwent, till 1851. Mr. Lea's interest in geology led him to the study of the mollusca; and for this purpose he imported a large collection of shells from China. The examination and description of recent and fossil shells ultimately became the leading object of his investigations and writings. In an article on the "Northwest Passage," published in the "American Quarterly Review" in 1828, Mr. Lea expressed the opinion that if the passage was ever made it must be from west to east. This was afterward partly confirmed by Capt. McClure's achievement of the passage in that direction. Visiting Europe in 1832, Mr. Lea attended the second meeting of the British Association, at Oxford, and became acquainted with the prominent scientific men of Great Britain and the Continent. During his visit he assisted in the arrangement and naming of the collections of *Unionidae* in the British Museum, and the *Jardin des Plantes*. In December, 1833, he presented to the Academy of Natural Sciences, of Philadelphia, descriptions, with figures, of two hundred and twenty-one species of shells, which had been sent in to him during his absence, including many new species from Alabama. "A Synopsis of the Family of Naiades" was published in 1836; a "Notice of the Oölitic Formation in North America, with Descriptions of some of its Organic Remains," in 1840. A paper "Upon some Reptilian Foot-marks (*Sauropus primarius*) recently discovered near Pottsville, Pa.," in the Red Sandstone, in Rogers's Formation XI (Devonian), communicated to the American Philosophical Association, and afterward, in substance to the British Association, in 1849, is worthy of remark as relating to the oldest fossil trace of an air-breathing animal which had at that time been found. A second visit to Europe, in 1853, greatly enlarged Mr. Lea's acquaintance with scientific men, and afforded gratifying evidences of the recognition which he had gained in all countries as a leader in his field of science. In 1858 he published an important memoir on the embryology of the

Unionidae. He was also much interested in mineralogy, and had accumulated an extensive collection of specimens. The list of his published papers, from 1817 to 1876, comprises two hundred and seventy-nine titles; but some of the papers include descriptions of several hundred species. Mr. Lea was elected a member of the American Philosophical Society in 1828, and was also a member or honorary member of a large number of other scientific societies in the United States and Europe. He was President of the Academy of Natural Science of Philadelphia from 1858 to 1858; Vice-President of the American Philosophical Society for several years; and President of the American Association in 1860.

Leveridge, John, an American lawyer, born in New York city in 1792; died there, Feb. 17, 1886. He was educated in a private school, studied law, and was admitted to the bar in 1811. During the mayoralty of James Harper in 1844 and 1845 he was Corporation Counsel. He was in full possession of his mental and physical powers until his death.

Lewis, Dio, an American physician, born in Auburn, N. Y., March 3, 1823; died in Yonkers, N. Y., May 21, 1886. He was educated in the old school of medicine, at the medical department of Harvard College, but became a convert to homeopathy and practiced it for several years in Buffalo, N. Y. His wife's health failing, he abandoned his practice, went South, and began lecturing upon physiology and hygiene, traveling extensively for eight years. He then settled in Boston, developed his new system of gymnastics, and opened a school for young ladies in Lexington, Mass., where his method of physical training met with much success. But the building was burned down in 1867, and he resumed lecturing on hygiene and temperance. He originated the noted Woman's Temperance Crusade in Ohio, published pamphlets and books on health subjects, and published and edited "To-Day," "Dio Lewis's Monthly," "Dio Lewis's Nuggets," and the "Dio Lewis Treasury," the latter being put to press just before his death.

Lippincott, Joshua Ballinger, an American publisher, born in Burlington county, N. J., in 1816; died in Philadelphia, Pa., Jan. 5, 1886. He learned the book-selling business at an early age, and at eighteen was in charge of a large store in Philadelphia. In 1836, when twenty years old, he founded the publishing house of J. B. Lippincott & Co., and in January, 1868, he established "Lippincott's Magazine," a popular monthly publication, and some years later the "Medical Times." In 1875 the house established a London agency to facilitate the importation of European books. The firm have published a large number of books, some of which, like Dr. S. Austin Allibone's "Dictionary of Authors," possess a lasting value.

Loew, Charles E., an American lawyer, born in Germany in June, 1837; died in New York city, April 21, 1886. He was brought to

America when two years old, received a public-school education, and was admitted to the bar in New York city. In 1867 he was elected county clerk as the candidate of Tammany Hall, and at the expiration of his term was re-elected. He declined a nomination for mayor in 1870. In 1879 he became so indignant at John Kelly's action at the time of the Saratoga Convention that he resigned his membership in Tammany Hall, and held aloof from it until shortly before the convention that nominated Gov. Hill. He was a school trustee for several terms, President of the Grand Central Savings-Bank, President of the Iron Steamboat Company, and a member of the commission to consider various plans for laying telegraph-wires underground.

Lothrop, Samuel K., an American clergyman, born in Utica, N. Y., in 1804; died in Boston, Mass., June 12, 1886. He was graduated at Harvard in 1825, and at its divinity school in 1828. In 1829 he was called to the pastorate of the Unitarian Church in Dover, N. H., and dedicated the church-building on the day of his ordination. He remained in this charge until 1834, when he accepted a call to the historic Brattle Square Church, Boston, where he officiated continuously until 1871. The demolition of the building to make way for a business block then forced the congregation to seek quarters elsewhere. A new building was erected, in which Dr. Lothrop continued preaching until 1876, when he was retired, and the society dissolved. He had been a member of the Boston School Committee for thirty years and chairman of the English High-School Committee for twenty-six. In addition he had held the place of Corresponding Secretary of the Massachusetts Humane Society, delegate to the Massachusetts Constitutional Convention of 1853, and a member of the Massachusetts Historical Society and the Society of the Cincinnati. He received the degree of D. D. from Harvard in 1852.

Ludlow, N. M., an American actor, born in New York city in 1795; died in St. Louis, Mo., Jan. 9, 1886. He began his theatrical career in 1815, his first appearance being in the melodrama "Forty Thieves." Shortly afterward he joined, at Albany, N. Y., the first company that undertook a tour of the Western States, Alexander Drake heading the party. Their first performance was at Olean, N. Y., where they played by candle-light in a barn. They then put all their effects on a flat-boat and descended the Alleghany to Pittsburg, stopping at the little settlements on the banks to give performances. In this way they introduced dramatic art in many towns of Kentucky and Tennessee, and then, descending the Mississippi, played at all the towns within reach. They arrived at New Orleans in 1817, and played there for several months. In 1819 Mr. Ludlow took the first regular dramatic company to St. Louis, and gave three performances a week, merging a rival company into his own in 1820, and

there presenting a series of standard dramas. In 1834 he became associated with Sol Smith and the Field Brothers, and they played together for twenty years, when he retired from the stage and began compiling his memoirs, which were published in a large volume entitled "Dramatic Life as I Found It" (1880). In late years Mr. Ludlow reappeared occasionally, but only in benefit performances.

McCook, Roderick S., an American naval officer, born in Steubenville, O., March 10, 1839; died in Vineland, N. J., Feb. 13, 1886. He was graduated at the Naval Academy in 1859; was attached to the steam-frigate "Minnesota" in 1859-'61; commanded the steamer "Stars and Stripes," North Atlantic blockading squadron, 1861-'62; steamer "Bienville," North Atlantic squadron, 1862-'63; ironclad steamer "Cannonicus," South Atlantic blockading squadron, 1863-'65; steamer "Tioga," Gulf squadron, 1865-'66; steamer "Kearsarge," South Pacific squadron, 1868-'69; was commissioned lieutenant in 1861, lieutenant-commander in 1865, and commander Sept. 25, 1873. He was navigation officer at the Brooklyn Navy-Yard in 1877-'78, and a lighthouse inspector in 1880-'84. During the war he took an active part in the operations before Newbern, Wilmington, Fort Fisher, Charleston on the James river, Forts Hatteras and Clark, and Roanoke Island, and had performed a sea service of ten years and eight months, and been on shore or other duty fifteen years.

McKay, Henry Kent, an American lawyer, born in New Hampshire; died in Atlanta, Ga., July 31, 1886. He went to Georgia when very young, was there educated and admitted to the bar, and at the outbreak of the civil war was engaged in large practice, which he gave up to join the Confederate army. At the close of the war he became a Republican, and was a conspicuous member of the reconstruction Constitutional Convention of 1868. On the accession of Gov. Bullock, Mr. McKay was appointed a justice of the Supreme Court of Georgia, and on that of President Hayes, Judge of the United States Court for the Northern District of Georgia. For more than a year prior to his death he was totally incapacitated by a mental malady.

McKenney, Gerald, an American journalist, born in Dublin, Ireland, in 1848; died in New York city, Jan. 1, 1886. He was graduated at Dublin University, came to America about 1868, and became a reporter on the New York "Herald." He was naturally fond of travel and adventure, and, after making several trips to Central America in the interests of that newspaper, volunteered in 1873 to accompany the party that was being fitted out by the Government to search for the survivors of the "Polaris" Expedition. He was appointed clerk to Capt. D. L. Braine, of the "Juniata," and in that capacity went to the Arctic regions. When the "Little Juniata" was sent from Upernivik to a point beyond that which the

larger vessel was able to reach, he formed one of Lieut. De Long's party and proceeded as far north as Tessusoak, in Melville Bay, and on his return to the "Juniata" presented the party with some venison, the first fresh meat they had had in many days. He was appointed court stenographer in General Sessions in 1875, and still held the place at the time of his death.

McLean, James H., an American physician, born in Scotland, Aug. 13, 1829; died in Danville, N. Y., Aug. 12, 1886. He was brought up in Nova Scotia, and removed to the United States in 1842; studied medicine and surgery in St. Louis, Mo.; and, after being graduated, practiced and lived there until within a few weeks of his death. He was elected to the Forty-seventh Congress as a Republican in a Democratic district, to fill a vacancy, and was defeated for re-election as a Democrat. In the early part of the war he began manufacturing a proprietary medicine, from which he amassed a large fortune. He was highly respected in St. Louis, and was a man of large charities.

McPherson, E. H., an American soldier, born in Covington, Ky., in 1837; died in Evansville, Ind., March 4, 1886. He was graduated at the U. S. Military Academy, and rose to the rank of colonel in the regular army, serving during the civil war mainly in the West. Since the close of the war he had gained distinction as an Indian fighter.

Maclean, George McIntosh, an American physician, born in Princeton, N. J., in 1807; died there, March 8, 1886. His father was a professor in the College of New Jersey from 1795 to 1812. He was graduated at that institution in 1824, and having chosen the medical profession attended lectures in the New York Medical College, where he was graduated with high honors in 1829. At one time he occupied the chair of Chemistry and Natural History in Hanover College, Indiana. He was well known as a physician, an author, a lecturer, and a writer on medical subjects.

Maclean, John, an American clergyman, born in Princeton, N. J., March 3, 1800; died there, Aug. 10, 1886. His father, a Scotchman, came to America near the close of the last century, and when thirty-six years old was appointed Professor of Chemistry and Mathematics in the College of New Jersey; his mother was a sister of Com. Bainbridge. He was graduated at the College of New Jersey in the class of 1816, immediately became a tutor there, and maintained an active connection with the institution for more than fifty years, occupying nearly every chair in the faculty during that period. In December, 1853, he was elected president of the college, and on June 28, 1854, was inaugurated. He resigned the office in 1868, and was succeeded by James McCosh, D. D., LL. D. During the fourteen years of his incumbency Dr. Maclean conferred the degree of B. A. upon 895 students. Upon his retirement a residence in Canal Street was purchased and

presented to him. He was for many years President of the Colonization Society, which undertook to send Southern slaves to homes in Africa, and was a member of the Foreign Missionary Society.

Magoon, Elias Lyman, an American clergyman, born in Lebanon, N. H., Oct. 20, 1810; died in Philadelphia, Pa., Nov. 25, 1886. His grandfather was a Baptist minister and a participant in the Revolution. His father was a successful architect. At sixteen years of age young Magoon was apprenticed to the bricklayer's trade, which he followed for four years. During his apprenticeship he prepared himself for college, and with a capital of \$40 entered Waterville College, Me. (now Colby University), where he was a classmate of Hannibal Hamlin. In his vacations he worked at his trade in Lowell, where he boarded with a Mrs. Butler, a poor widow, who had a son she was anxious to send to college. Being unable to go to Waterville at the time, young Magoon wrote to the president of the college, introducing the boy, and saying, "Master Butler will make a good scholar." The letter was dated Sept. 18, 1834. Magoon carefully looked after the comfort and supervised the studies of the widow's son, who is the now famous General Benjamin F. Butler. In 1836 Mr. Magoon entered Newton Seminary, and in 1839 was ordained a minister in the Baptist church, and settled at Richmond, Va., where he remained six years. He then became pastor of the Ninth Street Baptist Church, Cincinnati, and in 1849 of the Oliver Street Baptist Church, New York. In 1857 he took charge of the First Baptist Church in Albany for ten years, then removed to the Broad Street Baptist Church, in Philadelphia, where he continued to preach until April, 1884. In 1853 Rochester University conferred upon him the degree of D. D., and during the centennial anniversary of the city of Lowell the hospitality of the city was extended him by the mayor and corporation. He was an enthusiastic collector of works of art and valuable books. He presented his collection of Protestant literature to Newton Seminary, his illustrated art works to Rochester University, a large number of miscellaneous works to Colby University, a collection of water-colors to the Metropolitan Museum, New York, his Roman Catholic theological works to Cardinal McCloskey, and a large number of books to Bates College, Me. He wrote several works, of which the most popular are: "Proverbs for the People," "Orators of the American Revolution," "Republican Christianity," and "Westward Empire." He also lectured in various parts of the country, always attracting large audiences. As a pulpit orator Dr. Magoon had few equals. He was simple in his habits, and never forgot the struggles of his early days. The most highly-prized object in his collection was a brick incased in a frame of beaten bronze. It was the first brick he ever laid. He was a great admirer of Edwin Forrest, and at one time thought seriously of adopting

the stage as a profession. When the question of opening the Permanent Exhibition on Sundays was discussed, he was the only clergyman that came out in favor of the movement, and, when his conduct in so doing was criticised, he said, "It is better to have men enjoying themselves quietly in a place where amusement is blended with instruction, than to have them lying around taverns and saloons, corrupting their minds and destroying their bodies drinking rum."

Mazzanovich, John, an American scenic artist, born in the Island of Lazina, off the coast of Italy, about 1856; died in New York city, June 8, 1886. When twelve years old he came to America with his parents, and settled in Portland, Oregon. Nine years later he enlisted in the regular army, and was ordered to Arizona, where an Indian campaign was in progress. The surgeon of his regiment was an amateur artist, who in leisure hours gave him instruction in painting. At the end of three years he was discharged from the army, and, settling in San Francisco, Cal., placed himself under the tuition of a scenic artist. His progress was rapid, and he found no difficulty in obtaining employment. He did some very effective work at Baldwin's, the California, and the Brush Street Theatres, and then came to New York city, where he was for some time engaged at Wallack's Theatre, subsequently doing work for the principal theatres. In 1885 he became the chief scenic artist at McVicar's Theatre, Chicago, but, finding himself a victim to consumption, he returned to California. Experiencing no relief from that climate, he again came to New York city, and died five days after his arrival. His best work here was for "The Rajah," "The Silver King," "Nanon," and "Falka."

Meredith, Joseph H., an American soldier, born in 1839; died in New York city, March 29, 1886. At the beginning of the civil war he enlisted as first-lieutenant in the Thirteenth Connecticut Volunteers. Before he had served a year he was stricken down with acute malaria and compelled to return North; but within a few months he again went to the field, and served upon the staffs of Gens. Foster, Bailey, and Heron. When the Eighty-second Infantry, the first colored regiment, was organized, he was commissioned as a captain in it. At the close of the war he was appointed Inspector-General of Florida, receiving the brevet of colonel for his gallantry. Coming to New York city, he was appointed to a place in the Custom-House, which he held until his death, becoming Chief of the Fourth Division. He was a founder of Farragut Post, No. 75, G. A. R.

Miller, John F., an American soldier, born in South Bend, Ind., in 1831; died in Washington, D. C., March 8, 1886. He received an academic education in South Bend, and was fitted for college in Chicago, but did not enter, going to New York and beginning the study of law when eighteen years old. He was graduated at the New York State Law School

in 1852 with the degree of L. B., and began practicing at South Bend. Failing health led him to California in the following year, where he practiced for three years, when he returned to Indiana and resumed his profession. He took an active part in the Fremont campaign of 1856. At the outbreak of the civil war he was a member of the State Senate, but resigned to become colonel on the staff of Gov. Morton, and was soon afterward given the command of the Twenty-ninth Indiana Volunteers. On reaching the field he was placed in command of a brigade, serving almost from the beginning of hostilities in the West, under Gens. Sherman, Buell, Rosecrans, and Thomas. At the battle of Stone River he distinguished himself by charging at the head of his brigade across the river and driving Breckinridge from his position, receiving a bullet in his neck during the charge. For his gallantry he was promoted to brigadier-general. In the battle of Liberty Gap he made another charge with his brigade, and at the moment of victory was stricken down by a second bullet, which entered his left eye and lodged in the bone of the forehead. Despite the constant pain, he carried this bullet for twelve years, various surgeons declining to attempt its removal through fear of destroying the other eye, or of impairing his brain; but it was successfully extracted in 1875. He commanded the left division, of 8,000 men, at the battle of Nashville, and was brevetted a major-general for conspicuous bravery. At the close of the war he was offered a commission of high rank in the regular army, but declined it, and returned to California to practice his profession. He was almost immediately appointed Collector of the Port of San Francisco, however, and, after serving four years, declined a reappointment. He then abandoned his profession to engage in business pursuits, and became President of the Alaska Commercial Company. Gen. Miller was a Republican candidate for presidential elector in 1872, 1876, and 1880, and a member of the California Constitutional Convention of 1879. He was elected United States Senator, Jan. 12, 1881, and took his seat on March 4 following. On the organization of the Forty-seventh Congress he was appointed a member of the Committees on Foreign Relations and on Naval Affairs, and in the Forty-eighth and Forty-ninth Congresses he was chairman of the Committee on Foreign Relations, and a member of that on Civil Service and Retrenchment.

Milmore, Joseph, an American sculptor, born in Sligo, Ireland; died in Geneva, Switzerland, Jan. 17, 1886. He belonged to a family of sculptors, the most eminent of whom was his brother, Martin Milmore. He was taken to Boston, Mass., when an infant, and, after attending the Brimmer and Quincy Schools, was apprenticed to a cabinet-maker. Disliking his prospects, he abandoned that trade and became a marble-cutter, in which employment he developed a marked taste for architectural work.

He was then associated with his brother, and together they executed the "Sphinx" in Mount Auburn Cemetery, and designed and executed the statuary in connection with Horticultural Hall, Boston, and a large number of soldiers' monuments throughout the country, the most notable of which is that on Boston Common.

Mitchell, William, an American lawyer, born in New York in 1801; died in Morristown, N. J., Oct. 6, 1886. In 1849 he was elected a Justice of the Supreme Court of New York, serving a term of seven years, and also a term of two years as a Justice of the old High Court of Appeals. He was one of the foremost lawyers at the bar for over half a century, was Vice-President of the Bar Association for two years, was particularly noted for his ability and integrity as a referee, and was an accomplished scholar. He kept up his professional work until about a year before his death.

Moran, Benjamin, an American diplomatist, born in Lancaster County, Pa., in 1820; died in London, England, June 20, 1886. He began life as a printer in Philadelphia, but when thirty years old went to Europe, traveled over England on foot, and published a volume of his impressions, "Footpath and Highway" (1853). In 1854 he became private secretary to James Buchanan, then United States minister to England, and in the following year was appointed Secretary of Legation. He remained in this office until 1874, and during that period frequently acted as *chargé d'affaires*. He was appointed minister resident in Portugal in 1874, holding the office until 1882. Mr. Moran was a contributor to the leading American and English periodicals, and was noted for his thorough familiarity with the archives of the American legation at London and the annals of American diplomacy.

Morris, Charles D., an American educator, born in England, about 1830; died in Baltimore, Md., Feb. 7, 1886. He took his degree at Lincoln College, Oxford, in 1849. After coming to America he served for several years as head of a classical school near Peekskill, N. Y., and as a professor in the University of the City of New York. On the opening of Johns Hopkins University in Baltimore, he became Collegiate Professor of Greek and Latin in that institution, and held the chair at the time of his death. He held a high rank as a classical scholar, and as an instructor of young men was both popular and successful.

Morse, Nathan B., an American lawyer, born in Canterbury, Conn., 1799; died in Brooklyn, N. Y., June 25, 1886. He was educated for the bar in the office of Ebenezer Young, with whom he was afterward associated in practice, and settled in Brooklyn in 1825. In 1827 he formed a partnership with William Rockhill, subsequently a Judge of the Supreme Court of New York. He became District Attorney in 1830, and, after serving as City Judge for two terms and City Treasurer one term, was elected Judge of the Supreme Court, Second District

of New York, in 1847. Judge Morse was the first President of the Union Ferry Company.

Mould, Jacob Wrey, an American architect, born in Chiselhurst, England, in 1825; died in New York city, June 14, 1886. He was educated in Cork, Ireland, and in London, and was graduated at King's College in the latter city in 1842. He became a pupil of Owen Jones, the distinguished architect, and they spent two years together in studying the Alhambra. Mr. Mould subsequently illustrated the second volume of Mr. Jones's "Alhambra," and assisted him on his "Grammar of Ornament." He also illustrated an illuminated edition of Gray's "Elegy," and the "Book of Common Prayer." Impressed with the singular beauty of Moorish designs and coloring, he threw much of their spirit into plans for several English residences, which received flattering criticisms. When, in conjunction with Mr. Jones, he designed the Moresque-Turkish Divan of Buckingham Palace, and the decorations of the World's Fair Exposition Building of 1851, he was accorded a high place among architects. In 1853 he was induced to come to New York city by Moses H. Grinnell, who desired him to design and superintend the construction of All Souls Church. On the execution of this commission, he became assistant to Calvert Vaux, Chief Architect of the Department of Public Parks, holding the place from 1857 till 1870, when he succeeded Mr. Vaux as chief, and served as such four years. During his incumbency of these offices, Central Park was designed and laid out, and his most effective work was there executed. Five years were occupied in making the drawings for the Terrace and its ornaments alone. He designed most of the bridges in the park, notably the Bow Bridge across the lake from the Ramble, and the Moorish structure used as the music-stand. In 1874 he went to Peru with Henry Meigs, to superintend some important architectural work, but the death of the latter soon led to his return. His last work was the design for the temporary tomb of Gen. Grant, which he executed in a few minutes.

Nagle, Henry Morris, an American soldier, born in Philadelphia, Pa., Jan. 15, 1815; died in Santa Clara, Cal., March 5, 1886. He was graduated at the West Point Military Academy in 1835, and left the army shortly afterward, engaging in business as a civil engineer. At the outbreak of the Mexican War he returned to military service and was commissioned as captain in the First New York Volunteers. He served throughout the war with distinction, and in 1848 went into the banking and commercial business in San Francisco, Cal., remaining there until the dawn of the civil war, when he again returned to service. He was appointed lieutenant-colonel of the Sixteenth Infantry in May, 1861, and brigadier-general of volunteers in February, 1862; was engaged in the early campaigns on the lower Potomac and on the Peninsula; was wounded in the battle of Fair Oaks; commanded a division in

the North Carolina Department, 1863; took command of the Seventh Army Corps in July, 1863; and served in the Department of the Tennessee until he was mustered out in April, 1864. He then resumed the banking business in San Francisco, and became deeply interested in viniculture in the Santa Clara valley.

Neumann, Gustavus A., an American journalist, born in Silesia, Prussia, in 1805; died in Sullivan County, N. Y., Dec. 11, 1886. While engaged in theological study at Jena, he was provoked into a student's duel, and immediately afterward emigrated, landing in America about 1830. Settling in New York city, he established a small newspaper in the German language, which was the first and for many years the only one in the city. Under his editorial and financial management the paper attained an influential position, and became the New York "Staats Zeitung" of to-day. Mr. Neumann was an ardent Democrat, and by the aid of his newspaper was soon recognized as the leader of the German adherents of the party in the city. In 1852 President Pierce appointed him head-weigher in the Custom-House, when he severed his connection with the paper. Three years later he was forced by ill-health to resign the office and retire from active life. His Democratic friends then made up a purse of \$10,000 for him, which he invested in a farm near Narrowsburg, where he spent the remainder of his life.

Nevin, John Williamson, an American clergyman, born in Shippensburg, Pa., Feb. 20, 1803; died in Lancaster, Pa., June 6, 1886. He was graduated at Union College in 1821, and entered the College of New Jersey, at Princeton, to take a theological course, in 1823. While pursuing his studies there, he became distinguished as an able Hebrew scholar, and developed a marked interest in Oriental and Biblical literature. After he had completed his course, he remained at the college as a tutor until 1826, when he was invited to occupy temporarily the chair of Oriental and Biblical Literature, made vacant by the absence of Dr. Hodge in Europe. He was licensed to preach by the Presbytery of Carlisle in October, 1828, and in the following year was appointed Professor of Hebrew and Biblical Literature in the theological seminary then recently established by the General Assembly in Allegheny City, Pa. He remained in this place ten years. In 1840 he accepted a professorship in the theological seminary of the Reformed Church at Mercersburg, Pa., and was shortly afterward made President of Marshall College, at that place. In 1843 he published his celebrated tract, entitled "The Anxious Bench," which provoked a remarkable and serious controversy in the Church on the subject of revivals, and led to what has been called the "Mercersburg theology." He resigned the direction of the theological seminary in 1851, and the presidency of Marshall College on its removal to Lancaster and consolidation with Franklin College in 1853. In

1866 he was elected President of Franklin and Marshall College, and held the place until 1876, when he retired to private life. Dr. Nevin's whole career was one of marked mental activity. He exercised an independent judgment, and wielded a facile pen from his student days. He edited a quarterly literary journal called "The Friend" in 1833-'34, and the "Mercersburg Review," in 1849-'53. His writings, which are very numerous, display a strong love of controversy, as well as an exceedingly critical mind. Among his best-known works are: "The Mystical Presence" (1846); "The History and Genius of the Heidelberg Catechism" (1847); "Anti-Christ, or the Spirit of Sect and Schism" (1848); "The Doctrine of the Reformed Church on the Presence of Christ in the Lord's Supper" (1848); "The Dutch Crusade" (1854); "Review of Dr. Hodge's Commentary on the Ephesians" (1857); "Vindication of the Revised Liturgy" (1867); "Answer to Prof. Dorner, of Berlin, Germany" (1868); "Revelation and Redemption" (1870); and "Revelation of God in Christ" (1871).

Nichols, Edward T., an American naval officer, born in Georgia, March 1, 1823; died in Pomfret, Conn., Oct. 12, 1886. He was appointed to the Naval Academy in 1836, and served as a passed-midshipman in the Mediterranean, Brazil, Pacific, and home squadrons from 1842 till 1850. At the outbreak of the civil war he was appointed to the command of the steamer "Winona," in the Western Gulf blockading squadron, and participated in the bombardment of Forts Jackson and St. Philip, receiving the surrender of the latter April 28, 1862. In the same year he took part in the attack and passage of the batteries at Vicksburg, and was commissioned commander on July 16. On June 16, 1864, while in command of the steamer "Mendota," he took part in the engagement with the Confederate battery at Four-Mile creek, on James river. After the war he was on special duty at New York in 1866-'68; commissioned as captain July 25, 1866; appointed chief of staff in the Asiatic squadron in 1870; commissioned as commodore and appointed commandant of the Boston Navy Yard in 1872; commissioned as rear-admiral, Feb. 26, 1878, and appointed to the command of the South Atlantic squadron; and placed on the retired list March 1, 1885. He was an admirable executive officer.

Nichols, William Ripley, an American chemist, born in Boston, Mass., April 30, 1847; died in Hamburg, Germany, July 14, 1886. He was graduated at the Roxbury Latin School in 1863, after which he spent two years abroad in study, and then was graduated at the Massachusetts Institute of Technology in 1869. His relations as teacher began with this institution during his senior year, and continued through the different grades of instructor and assistant professor until 1872, when he became Professor of General Chemistry, in which capacity he continued until his death. Prof. Nichols was

a member of numerous scientific societies, and a Fellow of the American Association for the Advancement of Science, of which organization he was elected Vice-President of the Section of Chemistry for 1885, and at that time presented a valuable address on "Chemistry in the Service of the Public Health." The subject of water-analysis was one to which he paid special attention, and was regarded as one of the first authorities in this country in that line of investigation. He published numerous papers on the water-supplies of Boston, Cambridge, New Bedford, Springfield, and Winchester, Mass.; New London, Conn.; and Yonkers, N. Y. Among his researches that deserve special mention are those devoted to the ventilation of railway-trains, and particularly the effects of the atmosphere of smoking-cars, undertaken at the request of the Massachusetts State Board of Health. He was devoted to the interests of the Institute of Technology, and compiled a list of the "Publications of its Officers, Students, and Alumni," in which may be found a complete list of his own papers down to 1882. At the time of his death he had in active preparation an index to the literature of carbon monoxide, and also, with Prof. Lewis M. Norton, a "Dictionary of Chemical Synonyms." He also prepared the following text-books: "An Elementary Manual of Chemistry," abridged from Eliot and Storer's manual, with the co-operation of the authors (New York, 1872); a "Compendious Manual of Qualitative Analysis," by Charles W. Eliot and Frank H. Storer (1872), this and subsequent editions being of his revision; "Water-Supply, mainly from a Chemical and Sanitary Standpoint" (1883); and, with L. M. Norton, "Laboratory Experiments in General Chemistry" (printed privately, Boston, 1884).

Noyes, John H., an American religious enthusiast, born in Brattleboro', Vt., in 1811; died at Niagara Falls, Ontario, Can., April 13, 1886. He was educated in Andover and New Haven, and while pursuing his theological studies was brought under the influence of revivalist preachers. This event and his own reading of the Bible led him to believe that all existing forms of religious worship were wrong, and from this belief he soon passed to another, that it was his mission to found a new and the true religion. He began preaching his theories in 1834, and gathering about him a number of adherents he gave to them the name of "Perfectionists." During the next twelve years he confined his labors mainly to Putney, Vt., and then, having adopted some of the principles of Fourierism, he induced his followers to attempt the experiment of communal living. The result was, that the indignation of the citizens was raised so strongly against them that, rather than renounce their belief, they sought an abiding-place elsewhere. In 1848 they established themselves at Oneida, Madison County, N. Y., and have since been known as the Oneida Community. Various at-

tempts to maintain branch communities have failed, and by the merging of these interests into the common property of the parent establishment, that has acquired considerable material strength.

Onderdonk, Horatio G., an American lawyer, born in Manhasset, Long Island, N. Y., Aug. 14, 1808; died there, April 6, 1886. He was educated at Christ Church Academy and at Rutgers College, New Brunswick, N. J., receiving his degree from the latter in 1839. In 1833 he successfully led a movement to prevent the removal of the county court-house from his native town, and from that time he was one of the most prominent and influential men in Queens County. He was elected justice of the peace in 1833, and was county judge in 1835-'40. He had the largest professional business in Queens County.

O'Reilly, Henry, an American journalist, born in Carrickmacross, Ulster, Ireland, Feb. 6, 1806; died in Rochester, N. Y., Aug. 17, 1886. He came to America with his father in 1816, and learned the printer's trade on the New York "Columbian." In 1826 he became editor of the Rochester "Daily Advertiser," and was thus employed for four years. For over half a century Mr. O'Reilly had been prominently identified with matters of large public interest, such as the development of the telegraph system of the United States, the reconstruction and enlargement of the Erie Canal, and the improvement of the common-school system of New York State. He was a remarkably practical man, and much respect was accorded his judgment in matters of public concern. He was the author of "Sketches of Rochester, with Notices of Western New York," an entertaining description of pioneer life in the Genesee valley, with illustrations (Rochester, 1838), and several pamphlets on the Anti-masonic troubles.

Osborn, Austin Melvin, an American lawyer, born in Windham, Greene County, N. Y., Dec. 2, 1835; died in Catskill, N. Y., Oct. 31, 1886. He was educated at Rensselaerville Academy, read law with Danforth K. Olney, of Catskill, and was admitted to the bar in 1856. As a Democrat he was elected District Attorney of Greene County in November, 1865, and held the office three years. On the death of County Judge Olney, Jan. 11, 1870, Mr. Osborn was appointed to fill the vacancy, serving one year. The election of Judge Theodore Miller to the Court of Appeals in 1875 created a vacancy on the bench of the Supreme Court, which was filled by the appointment of Judge Osborn, who in the same year was elected for the full term of fourteen years. His term would not have expired until Dec. 31, 1889. Judge Osborn was popular both with bar and people, being esteemed a learned and upright jurist, and on the day of his funeral all the places of business in Catskill were closed.

Owens, John Edward, an American actor, born in Aigburth Vale, Liverpool, England, in 1823;

died in Aigburth Vale, near Towson, Md., Dec. 7, 1886. He was of Welsh parentage, and was brought to America when three years old, his father first settling in Baltimore, Md., and subsequently establishing himself in the drug-business in Philadelphia, Pa. John served for some time in his father's store, from which he went to a wholesale house, but remained there a few months only. He made his first appearance on the stage at the National Theatre in Philadelphia, then under the management of William E. Burton, in 1841, being assigned to a small part in support of Charlotte Cushman. Having some difficulty with Mr. Burton, he withdrew after a brief experience, and returned to the drug-business. In 1846 he reappeared, taking the character of Jack Humphries in "Turning the Tables," in a benefit to D. P. Bowers at the Philadelphia Museum. From this time he advanced rapidly in his profession. In 1849 he became associated with Mr. Hann in the management of the Baltimore Museum, taking entire control in the following year. At New Orleans he made the acquaintance of Joseph Jefferson, while playing in the farce "A Kiss in the Dark," and they afterward played together in "The Poor Gentleman." In the early part of 1852 he opened Brougham's Lyceum, New York city, at the invitation of that genial comedian, and was received with enthusiasm. In June of the same year he set out on a non-professional tour of Europe, and while in London declined a flattering offer at the Adelphi Theatre, then under Mme. Celeste's management. During his tour over the Continent he made the ascent of Mont Blanc. Returning in 1853, he gave with much success, in New York, Philadelphia, Baltimore, and other cities, a panoramic entertainment illustrative of the mountain, and again settled in Baltimore, selling the museum, and reopening the old St. Charles Theatre. In 1858 he made another trip to New Orleans, and remained for some time as the principal comedian at the Varieties Theatre, and then took the management, conducting the house successfully until the beginning of the civil war. On Aug. 29, 1864, he began one of the most brilliant engagements on record in Wallack's Theatre, New York city, when he produced his inimitable "Solon Shingle," a piece that held the boards until April 14, 1865. He appeared at the Adelphi Theatre, London, with the same piece, in July of that year, and in January, 1866, he began a second engagement at Wallack's. His last appearance in New York was at the Madison Square Theatre, where he occupied the season of 1882-'83 with "Esmeralda," with which he afterward traveled. His last managerial experience was in 1885, in Charleston, S. C., at the Academy of Music, which he had owned since 1872. He died of cancer in the stomach, at his beautiful country-house, which was named for the village of his birth. He had amassed a large fortune.

Palmer, Edward, an American clergyman, born in New England in 1802; died in New York city, Feb. 25, 1886. He first attracted attention when a printer in Boston, Mass., many years ago, writing and publishing a pamphlet demanding the abolition of slavery, and the suppression of capitalized monopolies. Removing to New York city, he associated himself with the coterie of philosophers, under the leadership of Marcus Spring, and promulgated many eccentric social and political ideas. He claimed that men should work for higher motives than that of pecuniary gain, and emphasized his teachings by refusing to accept money for his services, confining himself to the barest necessities of life. Although a prominent character forty years ago, he had passed out of recollection, as he lived in retirement for nearly a generation.

Paul, Gabriel B., an American soldier, born in Missouri, April 13, 1812; died in Washington, D. C., May 4, 1886. He was graduated at the U. S. Military Academy, eighteenth in a class of thirty-six members, in 1834, and was made a second-lieutenant in the Seventh Infantry. He served with his company through the Florida and Mexican wars, sustaining severe wounds at Cerro Gordo, and receiving the brevet of major for bravery at Chapultepec. On the outbreak of the civil war he was serving on the New Mexico frontier as major of the Eighth Infantry. He was appointed colonel of the Fourth New Mexico Volunteers in December, 1861, and the next year lieutenant-colonel of the Eighth Infantry, and in September brigadier-general of volunteers. In the latter capacity he was assigned to duty with the Army of the Potomac. He took part in the battles of Fredericksburg, Chancellorsville, and Gettysburg, and in the latter was again wounded, a rifle-ball passing through both his eyes and rendering him totally blind. He was promoted to the brevet rank of brigadier-general in the regular army, Feb. 23, 1865, and in December, 1866, Congress granted him the full pay and allowances of a brigadier-general, and he was retired. Although blind, Gen. Paul served for some time as deputy-governor of the Soldiers' Home at Washington, D. C., and as manager of the Military Asylum at Harrodsburg, Ky.

Pearson, Clement, an American physician, born in Mercer County, Pa., Dec. 19, 1819; died in Washington, D. C., Jan. 29, 1886. He began the practice of medicine in Salem, Ohio, in 1850, and in March, 1857, was graduated at the Western Homeopathic College, Cleveland, after which he removed to Mount Pleasant, Iowa, being the pioneer of homeopathy in that section. In 1874 he became a resident of Washington, D. C., where he soon established a lucrative practice. He was a member of the American Institute of Homeopathy and of the International Hahnemannian Association, being one of the founders and for two terms the president of the latter.

Perry, Benjamin Franklin, an American lawyer, born in Pendleton District, S. C., Nov. 20, 1805; died in Sans Souci, Greenville, S. C., Dec. 3, 1886. He was graduated at South Carolina College in 1824, studied law in the office of Col. James Gregg, of Columbia, and was admitted to the bar in 1827. In 1832, on becoming editor of the Greenville "Mountaineer," he boldly attacked the Nullification party in the State, not sparing its leader, John C. Calhoun. His action excited bitter enmity, and strong influences were employed to induce him to abandon his Union proclivities, but in vain. He was a Union man at heart; the sturdy defense of his principles, and the persistent warfare upon his political enemies, led to the building up of a Union party in the State, and when, in 1832, a Union Convention was held, he was its leading spirit. The strength of the Union party was put to a test in 1834, when Mr. Perry received its nomination for Congress; and, although he was defeated, the majority against him was so small as to be a matter of encouragement to his followers. In 1836 he was elected to the Legislature, where he served until 1844, when he went to the State Senate, and there, too, he labored earnestly for the Union cause. Recognizing the growing spirit of secession, he established, in 1850, a Union newspaper at Greenville, and in the State Convention of the following year he delivered stirring appeals to the honor and loyalty of its members. But the tide was beyond his strength. When the State seceded in 1860, he informed Gov. Means that, while he had tried for thirty years to prevent the act, honor and patriotism required him to stand by his State, right or wrong. Under the Confederacy he held the offices of District Attorney and District Judge, and at the close of the war he was appointed Provisional Governor by President Johnson. He was subsequently elected United States Senator, but was not permitted to take his seat.

Phelps, John Smith, an American lawyer, born in Simsbury, Hartford County, Conn., Dec. 22, 1814; died in St. Louis, Mo., Nov. 20, 1886. He was educated at Washington (now Trinity) College, Hartford, Conn.; studied law in the office of his father, Elisha Phelps; practiced for a short time in his native State, and settled in Springfield, Greene County, Mo., in 1837. In 1840 he was elected to the Legislature; in 1841 was appointed brigade-inspector of militia; and in 1844 was elected to Congress, serving continuously till the close of the Thirty-sixth Congress, and being a member of the Select Committee of Thirty-three on the Rebellious States. During his congressional service he was chairman of the Committee of Ways and Means for seven terms. He was re-elected to the Thirty-seventh Congress, but resigned and entered the army as a colonel of volunteers under an appointment by President Lincoln. In 1862 he was appointed by President Lincoln Military Governor of Arkansas.

In 1866 he was a delegate to the National Union Convention in Philadelphia; in 1867 was appointed a commissioner to settle the war claims of Indiana; and in 1876 he was elected Governor of Missouri as a Democrat, serving four years. This proved to be his last public service, as his sufferings from rheumatism prevented his acceptance of any additional honors.

Philbrick, John Dudley, an American educator, born in Deerfield, N. H., May 27, 1818; died in Danvers, Mass., Feb. 2, 1886. He was graduated at Dartmouth College in 1842, and began teaching in the Roxbury Latin School. Two years later he was appointed a teacher in the English High-School, Boston, where he gradually introduced some notable ideas of his own in the methods of instruction. His system in practical results was so far in advance of the prevailing one as to attract the attention of leading educators, and met with such approbation that in 1847 he was requested to organize a school upon his own plans. The Quincy Grammar-School was the result, and this became the basis of the new school system throughout Boston. The distinctive features of "the Quincy system" soon excited a profound discussion throughout this country and in England. In 1852 Prof. Philbrick was appointed Principal of the Connecticut State Normal School, resigning the next year to accept the State superintendency of schools. He was recalled to Boston in 1857, and elected Superintendent of Schools in that city, which office he retained until 1874, when he resigned; but in 1876 he was re-elected and served two years longer. In 1873 he was the Educational Commissioner of Massachusetts to the Vienna Exhibition, in 1876 to the Centennial at Philadelphia, and in 1878 to the Universal at Paris, and for his eminent services at the latter was created a Chevalier of the Legion of Honor. He received the degree of Ph. D. from Dartmouth College, that of LL. D. from Bates College, and that of D. C. L. from the University of St. Andrews, Edinburgh, Scotland. Prof. Philbrick was President of the Teachers' Associations of Massachusetts and Connecticut, of the American Institute of Instruction, and of the National Education Association; was editor of the "Massachusetts Teacher" and the "Connecticut Common-School Journal"; was a member of the Massachusetts State Board of Education for ten years, and of the government of the Massachusetts Institute of Technology. He was a popular lecturer, a voluminous writer on education, and author of several valuable text-books.

Pike, Austin Franklin, an American lawyer, born in Hebron, N. H., Oct. 16, 1819; died on his farm, in Franklin, N. H., Oct. 8, 1886. Mr. Pike was bred to farm-life, and in his native town began his education under a predecessor, the late U. S. Senator George G. Fogg, and continued it at Holmes Academy, Plymouth. After completing his academic studies at the age of twenty-two years, he entered upon the

study of law with George W. Nesmith, was admitted to the Merrimack County bar in 1845, and became a successful practitioner in Franklin. He was at first a partner of Judge Nesmith, then associated with himself Daniel Barnard until 1863; subsequently was with Isaac N. Blodgett, now a Justice of the Supreme Court, and later with Frank N. Parsons. Mr. Pike was an earnest and active politician in the Whig party, and became early associated with Daniel Webster. He was a member of the State House of Representatives from Franklin in 1850, '51, '52, '65, '66, and Speaker of that body the last two years. In 1856 he was a delegate to the Republican National Convention in Philadelphia that nominated Gen. John C. Fremont for the presidency. He was a member of the New Hampshire Senate in 1857 and 1858, and its president in 1858. He was chairman of the Republican State Committee in 1858-'60. In 1873 he was chosen a member of the national House of Representatives, where he was a member of the Committee on Elections; but when a candidate for re-election was defeated by frauds in Ward 5, Manchester. In 1883 Mr. Pike was chosen U. S. Senator for six years from the preceding March 4 to succeed Edward H. Rollins, after a long and notable contest between many candidates. He had not previously been a candidate, but a compromise was effected on him. He held important places on committees, and was an able, dignified, and courteous Senator. At his death he was President of the Citizens' National Bank, of Tilton, and a member of the Board of Trustees of the Franklin Library Association.

Pitkin, Frederick W., an American lawyer, born in Manchester, Conn., Aug. 31, 1837; died in Pueblo, Col., Dec. 18, 1886. He was graduated at Wesleyan University, Middletown, Conn., in 1858; entered the Albany Law School, and after being graduated there went West in 1860, and began to practice his profession in Milwaukee, Wis. Here he advanced to promising prospects both in legal and political directions, when failing health compelled him to give up business and seek recuperation abroad. In 1873 he was prostrated in Switzerland, and was brought home in the following year so ill that his family believed him to be in a dying condition. He then removed to Colorado and engaged in rough labor at the mines with beneficial results. He soon regained sufficient strength to resume his practice and to take an active interest again in political affairs. In 1878 he was elected Governor of the new State and was re-elected in 1880, as a Republican. He was prompt and fearless during the riots at Leadville, his energetic action preventing the loss of many lives and the destruction of much valuable property. He was urged to become a candidate for United States Senator in 1883 when Senator Teller became a member of President Arthur's Cabinet, but his health would not permit.

Purdy, Alfred S., an American physician, born in New York city, in 1808; died there, July 22, 1886. He was educated at Wesleyan University, Middletown, Conn., and at the College of Physicians and Surgeons, New York city, and after being graduated was appointed an assistant physician in Bellevue Hospital. Later he became attached to the New York Dispensary and the Lying-in Asylum. Dr. Purdy had been in active practice as a physician and surgeon for over fifty-five years. He was President of the Alumni Association of the College of Physicians and Surgeons, and a member of the New York Academy of Medicine, the Pathological Society, and the Medical Society of the city, and had been a trustee of St. Paul's M. E. Church for many years.

Quarley, Arthur, an American artist, born in Paris, France, in 1839; died in New York city, May 19, 1886. He was brought to this country when thirteen years old, and for several years worked at sign-painting in New York and Baltimore. In 1873 he gave himself up to the study of art, and soon attracted favorable notice as a marine painter. He settled in New York in 1876, and was elected a member of the National Academy of Design a few days before his death. His principal paintings are: "Trinity from the River," "The Queen's Birthday," "Port of New York," "Dignity and Impudence," "Morning Effect," "North River," and "The Coast of Cornwall."

Randall, David Austin, an American author, born in Colchester, Conn., Jan. 14, 1813; died in Columbus, Ohio, June 27, 1884. He received his schooling only in country schools and at Canandaigua (N. Y.) Academy, and was mainly self-educated. He became a Baptist clergyman, and was chaplain of the Ohio asylum for the insane in 1854-'56; pastor of a church in Columbus in 1858-'66, and corresponding secretary of the Ohio Baptist Convention in 1850-'63. He was for many years editor of the "Washingtonian," the first temperance paper in Ohio, and in 1845-'53 edited the "Cross and Journal," a Baptist paper. He was also widely known as a lecturer, and had various mercantile interests, being a member of a book-selling firm and director of a bank. He traveled in Egypt and Palestine in 1861-'62, and in Europe in 1867. He was the author of "God's Handwriting in Egypt, Sinai, and the Holy Land," of which 100,000 copies were sold (2 vols., 8vo, Philadelphia, 1862), and "Ham-Mishkan, the Wonderful Tent: a Study of the Structure, Significance, and Symbolism of the Hebrew Tabernacle" (Cincinnati, 1886). He left unfinished a life of Moses and a work on the miracles of Christ. He had received the degree of D. D.

Richardson, Edmund, an American planter, born in Caswell County, N. C., June 28, 1818; died in Jackson, Miss., Jan. 11, 1886. He attended a "field" school for three years, then found employment in a store in Danville, Va., and at the age of sixteen settled in Jackson,

where he gradually became interested in several cotton-plantations. Meeting with success at the outset, he rapidly extended his operations and embarked in all lines of the cotton industry, growing it, shipping it, dealing in it, and manufacturing the staple into cloth and the seed into oil. When the civil war began, he was considered a millionaire; when it closed, he was a bankrupt. But he repaired the losses that the war had entailed upon him with so much energy that at the time of his death he was called the cotton king of the world. He had amassed a fortune variously estimated at from \$8,000,000 to \$12,000,000; was the owner and manager of forty cotton-plantations in Louisiana, Arkansas, and Mississippi, marketing an average of 15,000 bales annually, and had, besides, over \$1,000,000 invested in business in New Orleans, and other large sums in mills, factories, and steamboats elsewhere. His annual income exceeded \$1,000,000. He was chairman of the Board of Management of the World's Industrial and Cotton Centennial Exposition in New Orleans in 1883, and gave \$25,000 to promote its success.

Richardson, Henry Hobson, an American architect, born in New Orleans, La., in 1839; died in Boston, Mass., April 27, 1886. He was graduated at Harvard, in the class of 1859, and also, in architecture, at the École des Beaux-Arts, Paris, France. On his return from Paris he engaged in business in New York city, but after his partner's death removed to Boston. He was one of the commissioners appointed to prepare plans for the New York State Capitol at Albany, and much of the exquisite work on that building is due to his genius, particularly the Senate-chamber, the Governor's room, the Court of Appeals, and the western stairway. Mr. Richardson was also the architect of the City Hall, Albany, N. Y.; Sever Hall and Austin Hall, Cambridge, Mass.; the Allegheny county building at Pittsburg, Pa., now being erected; the new building of the Chamber of Commerce, Cincinnati, Ohio; the Oakes Ames Memorial Hall, and Trinity Church, Boston. He also planned several library-buildings in New England, of which Crane Memorial Library at Quincy, Mass., is the most noticeable.

Rion, James H., an American lawyer, died in Winnsboro', S. C., Dec. 14, 1886. He served in the Confederate army during the civil war, reaching the rank of colonel, and since then, with the exception of being a member of the National Democratic Executive Committee in 1876, had persistently declined to become a candidate for any office. In addition to a large general law practice, he was chief counsel for the Richmond and Danville Railroad Company and the Atlantic coast-line railway system, and at the time of his death was also President of the Bar Association of South Carolina.

Robertson, Charles Franklin, an American clergyman, born in New York city, March 2, 1835; died in St. Louis, Mo., May 1, 1886. After attending private schools in New York,

he entered his father's office, intending to pursue a mercantile career; but in 1855 he entered Yale College with a view to taking orders in the Protestant Episcopal Church, and was graduated in 1859. He then took the prescribed course at the General Theological Seminary, New York, and was graduated there in 1862. In the same year he was ordained deacon and priest, immediately afterward assuming charge of St. Mark's Church, Malone, N. Y. He remained there till Sept. 1, 1868, when he was called to St. James's Church, Batavia, N. Y., and four days later was elected Bishop of the Diocese of Missouri. He was consecrated in Grace Church, New York city, Oct. 25, 1868, by Bishops Smith, of Kentucky; McCoskry, of Michigan; Johns, of Virginia; Lee, of Iowa; Potter, of New York; and Lay, of Arkansas. He received the degree of S. T. D. from Columbia College in 1868. Bishop Robertson was Vice-President of the St. Louis Social Science Association and of the National Conference of Charities and Corrections, and was an active or a corresponding member of the Virginia, Maryland, Southern Missouri, and Wisconsin Historical societies.

Rodney, John, an American clergyman, born in Lewes, Del., Aug. 20, 1796; died in Germantown, Pa., Sept. 29, 1886. He served as a private soldier under his uncle, Thomas Rodney, in the War of 1812, and entered the College of New Jersey, Princeton, in 1814. He went to Philadelphia and studied theology under Bishop White, of the Protestant Episcopal Church. He was ordained deacon in 1819, assigned to the parish of Trinity Church, Easton, Pa., and ordained priest by Bishop White in 1823. In 1825 he accepted a call from St. Luke's Church, Germantown, Pa., delivering his first sermon there in October. He was active and efficient till 1861, when he was elected rector emeritus and retired. In 1879 he celebrated his golden wedding. At the time of his death Mr. Rodney was the oldest living graduate of Princeton, and the oldest person in orders in the Protestant Episcopal Church in America.

Rowley, W. R., an American soldier, born in St. Lawrence County, N. Y., in 1824; died in Chicago, Ill., Feb. 9, 1886. He taught for some time in Brown County, Ohio, and in 1843 settled in Galena, Ill., where he held various civil offices. In November, 1861, he entered the military service as a first-lieutenant in the Forty-fifth Illinois Volunteers. After the battle of Fort Donelson he was commissioned captain and appointed aide-de-camp on the staff of Gen. Grant. He greatly distinguished himself at the battle of Shiloh, by riding from the thickest of the fight at the Hornets' Nest in the direction of Crump's Landing with orders to Gen. Lew Wallace to bring his troops to the battle-field as soon as possible, and for this he was promoted to the rank of major. He continued to serve on the staff till the siege of Vicksburg,

when he was temporarily detached from headquarters, and acted as provost-marshal-general of the Departments of the Tennessee and Cumberland, with headquarters at Columbus, Ky. When Gen. Grant was promoted to the rank of lieutenant-general, Maj. Rowley was promoted to lieutenant-colonel and military secretary on the former's staff, which office he held till October, 1864, when failing health compelled him to resign and return to Galena. Before his retirement, however, he was brevetted successively colonel and brigadier-general on Gen. Grant's recommendation. He was elected County Judge in 1877, and held the office at the time of his death. He was the only surviving member of Gen. Grant's military staff when he commanded the Army of the Tennessee.

Ruffin, George Lewis, an American lawyer, born in Richmond, Va., Dec., 16, 1834; died in Boston, Mass., Nov. 19, 1886. He was colored, born of free parents, and brought up in Boston, pursuing his education in the public schools. He began life as a barber, but afterward read law in the office of Messrs. Jewell & Gaston, and also studied in the Harvard Law School, where he was graduated in 1869. He established a successful law practice in Boston, served in the State Legislature in 1870-'71, and, as a Republican, was appointed Judge of the Municipal Court in the Charlestown district by Gov. Butler in 1883, being the first and only colored justice that Massachusetts or New England has ever had. The Executive Council promptly confirmed his nomination, and he discharged the duties of his office with dignity and acceptability.

Rushton, John, an American clergyman, born in Cambridge, England, in 1809; died in New York city, Jan. 25, 1886. He was educated at Cambridge University, but was not graduated, and came to this country in 1841. Settling in New York city, he identified himself with its missionary work, and from that time till a week before his death he was a constant laborer, preaching twice a week in the hospitals or missions for nearly a quarter of a century, and devoting upward of thirty-five years of his life to mission-work.

Ryan, Abram J., an American clergyman, born in Norfolk, Va., in 1840; died in Louisville, Ky., April 22, 1886. He was educated in Maryland for the Roman Catholic priesthood, and ordained in 1861. During the civil war he served as a chaplain in the Confederate army, and after its close spent several years as editor of "The Banner of the South," at Augusta, Ga., and "The Morning Star," at New Orleans, La. He was attached to the Diocese of Mobile, Ala., for nearly twelve years, during which time he preached, traveled, lectured, and collected thousands of dollars for the cathedral building in that city, and was one of the cathedral preachers for six years. In October, 1881, he asked permission of Bishop Quinlan to retire from all parochial duty, as

his health had become seriously impaired, and he was anxious to complete his "Life of Christ" before his death. His request being acceded to, he removed to Biloxi, Miss., and continued his literary work. For many years he was a contributor to Catholic periodicals. He probably will be best remembered as "the poet-priest of the South," his most popular pieces being "The Lost Cause," "The Sword of Lee," "The Flag of Erin," and the epic "Their Story Runneth Thus."

Schofield, Jacob L., an American engineer, born in North Highlands (now Phillipstown), Putnam County, N. Y., Feb. 21, 1795; died in Fishkill, N. Y., March 27, 1886. He received a common-school education, studied civil engineering, and practiced it for fifty years. Under the old State militia system he was active in military matters, and served as an officer in the War of 1812. He was afterward adjutant in the militia, then major, and ultimately brigadier-general, his brigade district comprising Dutchess, Putnam, Columbia, and Rensselaer Counties. Gen. Schofield was the leader of the Whig party in Orange County in the time of Henry Clay, for whom he had a profound esteem, and afterward he became and continued an uncompromising Republican.

Scott, Henry L., an American soldier, born in North Carolina, in November, 1814; died in New York city, Jan. 6, 1886. He was graduated at the U. S. Military Academy in 1833, and assigned to the infantry with the brevet rank of second-lieutenant. After being stationed at Baton Rouge, La., for three years, he participated in the Seminole War in Florida in 1836, and was promoted to be lieutenant in the Fourth Infantry in 1838. From 1842 till 1848 he was an aide-de-camp on the staff of his father-in-law, Gen. Winfield Scott, becoming captain in 1847, chief of staff with the army in Mexico, and brevet major and lieutenant-colonel for meritorious services during that campaign, particularly in the battles of Contreras and Churubusco. He was acting judge-advocate-general in 1848-'49, and again served on Gen. Scott's staff in 1850-'61, being promoted to the rank of lieutenant-colonel in 1857. He was subsequently commissioned as colonel, and in 1861 was in command of the national troops in New York city. In the latter part of that year he retired from active service, and, after spending a year in Europe on leave of absence, he resigned Oct. 31, 1862. He was the author of a military dictionary (1861).

Shanahan, Jeremiah Francis, an American clergyman, born in Silver Lake, Susquehanna County, Pa., July 17, 1834; died in Harrisburg, Pa., Sept. 24, 1886. After pursuing an academical course, he studied the ancient languages and the higher English branches at St. Joseph's College, Choconut, Pa., graduating with high honors. He then entered the Theological Seminary of St. Charles Borromeo, Philadelphia, where he completed his philosophical and theological course. He was ordained priest by

Rt. Rev. John Nepomucene Neumann, Bishop of Philadelphia, on July 3, 1859. The extent of his learning, his administrative powers, and his piety, led to his immediate appointment as rector of the preparatory seminary at Glen Riddle. He continued in this office until the Pope selected him to be the first bishop of the newly created diocese of Harrisburg, Pa. His appointment was dated March 3, 1868, and he was consecrated by Archbishop Wood, in Philadelphia, on July 12. By 1884 he had established in his diocese seven academies for the higher education of girls, twenty-nine parochial schools, two orphan asylums, and eleven new churches, besides introducing the Sisters of Mercy, of St. Joseph, of Christian Charity, of the Holy Cross, and the Seton Sisters of Charity from New York city.

Shand, Peter J., an American clergyman, born in Charleston, S. C., in 1800; died in Columbia, S. C., Nov. 1, 1886. He was educated for the bar, and practiced in Charleston with success for two years, after which he took up the study of theology to enter the ministry of the Protestant Episcopal Church. He was ordained priest Jan. 19, 1834, and called to the rectorship of Trinity Church, Columbia, S. C. The semi-centennial anniversary of his call to the church was celebrated in 1884.

Shepard, Charles Upham, mineralogist, born in Little Compton, R. I., June 29, 1804; died in Charleston, S. C., May 1, 1886. He was fitted for college at the grammar-school in Providence, R. I., and, after spending two years in Brown University, was graduated at Amherst College in 1824. After this he spent a year in Cambridge, studying botany and mineralogy under Thomas Nuttall; and at the same time giving instruction in these branches in Boston. While yet a student, he began to publish papers on minerals and their localities, in the "American Journal of Science." These led to his acquaintance with Prof. Benjamin Silliman, of Yale, to whom, in 1827, he became assistant in chemistry, botany, and zoölogy, and with whom he remained until 1831. For one winter during this time he was Curator of Franklin Hall, an institution established by James Brewster, the carriage-manufacturer in New Haven, for popular lectures on scientific subjects to mechanics. In 1830 he was appointed lecturer on natural history at Yale, and continued in this capacity until 1847. He was associated with Prof. Silliman in the scientific examination of the culture and manufacture of sugar, undertaken by the latter at the request of the Secretary of the Treasury in 1832. The Southern States, particularly Louisiana and Georgia, were assigned to him. From 1834 till 1861 he filled the chair of chemistry in the South Carolina Medical College, which office he relinquished at the beginning of the civil war; but, subsequently, in 1865, upon the urgent invitation of his former colleagues, he resumed his duties until 1869. While in Charleston he discovered rich depos-

its of phosphate of lime in the immediate vicinity of that city. Their great value in agriculture, and subsequent use in the manufacture of superphosphate fertilizers, proved an important addition to the chemical industries of South Carolina. In 1845 he became Professor of Chemistry and Natural History in Amherst, which chair in 1852 was divided, and he continued to deliver the lectures on natural history until 1877, when he was made professor emeritus. In 1835 he was associated with Dr. Percival in the Geological Survey of Connecticut, and continued, as long as he lived, his interest in the study of mineralogy. His first new species, microlite, was announced in 1835, that of warwickite in 1838, and of danburite in 1839; and other discoveries followed until shortly before his death. Prof. Shepard acquired a large collection of minerals, which at one time was unsurpassed in the United States. It was purchased in 1877 by Amherst College, but three years later it was nearly destroyed by fire, having been placed in a building that was not fire-proof. Early in life he began the study and collection of meteorites; and his collection, long the largest in the country, likewise became the property of Amherst. His papers on this subject, beginning in 1829, continued until 1885, numbered nearly forty, and were contributed principally to the "American Journal of Science." He received the honorary degree of M. D. from Dartmouth in 1836, and of LL. D. from Amherst in 1857. Prof. Shepard was a member of many American and foreign societies, including the Imperial Society of Natural Science in St. Petersburg, the Royal Society of Göttingen, and the Society of Natural Sciences in Vienna. Besides his many papers, he published a "Treatise on Mineralogy" (New Haven, 1833; third edition, enlarged, 1855); a "Report on the Geological Survey of Connecticut" (New Haven, 1837); and numerous reports on mines in the United States.

Silva, Francis A., an American painter, born in New York city in 1835; died there March 31, 1886. He learned the trade of sign-painting and pursued it till the opening of the civil war, when he enlisted as a volunteer, serving till the close. Returning to New York city in 1866, he applied himself closely to the study of water-color painting, and soon attained celebrity by his work. In 1872 he was elected a member of the Water-Color Society, and in 1873 a member of the Artists' Fund Society. Among his paintings that have attracted notice are: "A Gray Day at Cape Anne," "The Twilight Hour," "Sunrise on Boston Harbor," and "New London Light."

Sloane, J. R. W., an American clergyman, born in Ryegate, Vt., in 1823; died in Allegheny City, Pa., March 5, 1886. He had served for some time as President of Geneva College, resigning the office in 1854 upon accepting a call from the Third Reformed Presbyterian Church in New York city. He maintained pastoral relations with this church for

fourteen years, and was then, in 1868, elected Professor of Theology in the Reformed Presbyterian Seminary in Allegheny City, Pa., accepting also pastoral charge of the First Reformed Presbyterian Church in that city. One of his sons is Prof. W. M. Sloane, of the chair of History and Political Science in the College of New Jersey, who is also editor of the "New Princeton Review."

Smith, Ashbel, an American physician, born about 1803; died in Houston, Texas, Jan. 20, 1886. He was graduated at Yale College in 1824, and, after a medical course, became a colonist in Texas, while it was a province of Mexico. He was active in all the movements that led to the independence of Texas and its organization as a republic, and in March, 1836, when David G. Burnett was appointed Provisional President, Dr. Smith was selected as the diplomatic agent of the republic to secure recognition from the Governments of the United States, Great Britain, France, and Spain. Through his efforts the independence of the republic was recognized by the United States, March 3, 1837, and by France, Sept. 25, 1839, the latter power signing a treaty with him at that time. After the admission of Texas into the Union of American States, he held several offices of trust and responsibility. In the early part of the civil war he raised the Second Texas Volunteers, and led that regiment in several campaigns east of the Missouri river. At the close of the war he retired to his plantation on Galveston Bay, and, while taking an active part in the Democratic State Conventions, occupied himself mainly in the preparation of papers on scientific, medical, and agricultural topics.

Smith, Henry Clay, an American manufacturer, born in 1827; died in Baltimore, Md., Jan. 26, 1886. He was identified with the Baltimore and Ohio Railroad as a stockholder and director for many years, was a director in the Merchants' Mutual Marine Insurance Association, the National Exchange Bank of Baltimore, the Central Savings-Bank, the Baltimore General Dispensary, and the Female House of Refuge, and was Vice-President of the Board of Trade. When the Shoe and Leather Board of Trade was formed in 1870, Mr. Smith was elected president, and was unanimously re-elected for each succeeding term. He also had held the office of President of the Merchants' and Manufacturers' Association of Baltimore from its organization.

Smith, J. Hyatt, an American clergyman, born in Saratoga, N. Y., April 10, 1824; died in Brooklyn, N. Y., Dec. 7, 1886. His father, a Presbyterian clergyman, gave him a thorough education, and then sent him to Detroit, Mich., to engage in business. There, under the preaching of the elder Dr. Duffield, young Smith resolved to prepare himself for the ministry of the Baptist Church. He removed to Albany, N. Y., and, with the double view of earning his living and paying for his theologi-

cal education, he entered a bank and worked diligently at the desk until he was ready to preach. In 1848 he was licensed to preach. His first call was from Poughkeepsie, N. Y., where he labored until 1852, when the Second Baptist Church in Cleveland, Ohio, a new organization with only a dozen members, called him. He held that pastorate for three years, and during that time the church increased to a membership of 400. It is now the Euclid Avenue Baptist Church, with a fine house of worship. From Cleveland he went to Buffalo, N. Y., serving with the Washington Street Baptist Church from 1855 till 1860, and seeing the membership double in that time. His next call was from the Eleventh Baptist Church in Philadelphia, Pa., where he was stationed from 1860 till 1867, when he resigned to take the pastorate of the Lee Avenue Baptist Church in Brooklyn, N. Y. In November, 1880, he was elected a member of Congress in the Third New York District, as an independent candidate, receiving 22,085 votes against 20,626 votes for Simeon B. Chittenden, Republican. He resigned the charge of the Lee Avenue Baptist Church in September, 1881, and on the expiration of his congressional term, became pastor of the East Congregational Church in Brooklyn. He was a devoted pastor, an effective speaker, and an entertaining writer; his "Haren the Hermit," "Gilead," and "Open Door" being especially noted.

Stannard, George Jennison, an American soldier, born in Georgia, Vt., Oct. 20, 1820; died in Washington, D. C., May 31, 1886. Between the ages of fifteen and twenty he worked on his father's farm in summer, and taught in a district school in winter. In 1845 he became a clerk in the St. Albans Foundry Company, and in time was placed in charge of the business. In 1860 he was admitted a member of the company. Up to this time he had been active in the State militia, and had become colonel of the Fourth Vermont Regiment. On President Lincoln's first call for volunteers, he tendered the services of himself and his regiment by telegraph; but it was decided by the State authorities and the Legislature, then in special session, to organize a regiment of ten companies selected from the First, Second, and Fourth Regiments of the militia, under the command of Col. John W. Phelps, reserving Col. Stannard for the duty of organizing additional regiments. In May, 1861, he organized the Second Vermont Volunteers, was commissioned as its lieutenant-colonel, and mustered into the United States service at Burlington, June 12, 1861, leaving for the field twelve days later. He was with the men of the Second in every march and skirmish till the latter part of May, 1862, when he accepted the commission of colonel of the Ninth Vermont Volunteers, and was soon afterward assigned to Gen. Pope's command. On March 11, 1863, he was appointed brigadier-general of volunteers, and placed in command of the Second

Vermont Brigade. He rendered efficient service in the Gettysburg battles, his brigade being conspicuous in the repulse of the final Confederate charge, and was severely wounded in the cannonade with which Gen. Longstreet strove to cover the Confederate retreat. As soon as he was sufficiently recovered for light duty, he was assigned to the command of the troops garrisoning the forts in New York harbor, remaining at this post till May, 1864, when on the final advance of Gen. Grant upon Richmond he again took the field, being assigned to the Tenth Army Corps. He took part in the battle of Cold Harbor, where he lost two staff-officers and was again wounded. In the movement of the Eighteenth Corps on Petersburg, June 14, he led the advance with his brigade, occupied some of the enemy's fortifications within three quarters of a mile of the city, and was a third time wounded. On Sept. 19 he was assigned the task of storming Fort Harrison, which he accomplished in a gallant manner, capturing and holding that important work at the cost of his right arm. This wound unfitted him for active service for several months. In December, 1864, he was assigned to the command of the Vermont border, and remained in service in the Department of the East till February, 1866, when he was ordered to duty at Baltimore, in connection with the Freedmen's Bureau. He retired from the army June 27, 1876, and was appointed Collector of Customs for the District of Vermont, holding the office till 1872. In 1881 he was appointed addoor-keeper of the House of Representatives, Washington, D. C., and he died at this post.

Steele, J. Dorman, an American educator, born in Lima, N. Y., in 1836; died in Elmira, N. Y., May 25, 1886. He was graduated at Genesee College, Lima, in 1858, and spent several years as a teacher of natural sciences in various schools, becoming Principal of the Free Academy in Elmira, N. Y., in 1866. He was the author of a series of popular school-books, of which his "Manual of Chemistry" (1868), "Astronomy" (1868), "Philosophy" (1869), "Geology" (1870), and "Physiology" (1871), are the best known.

Stephens, Ann Sophia, an American author, born in Derby, Conn., in 1813; died in Newport, R. I., Aug. 20, 1886. She married Edward Stephens, a printer, of Plymouth, Mass., in 1831, and soon afterward removed to Portland, Me., where she began her literary career. In 1835 she established "The Portland Magazine," and edited it for two years, during which time her contributions attained considerable popularity. She removed to New York city in 1837, and became editor of "The Ladies' Companion," and, subsequently, of "The Ladies National Magazine." Besides her editorial writings, she was one of the earliest contributors to "Graham's Magazine" and "The Columbia Magazine," and her descriptive sketches and novelettes were sought by popular periodicals. In 1850 she was one

of a company of ladies and gentlemen that set out on a tour of Europe and the East, and while abroad her quick observation and remarkable powers of description were fully employed in the opportunities that travel afford. Previous to this trip she had won a name as a story-writer by her "Mary Derwent," for which she received a prize of \$400, "Malvia Gray," "The Patch-Work Quilt," and "A Story of Western Life." On her return she issued "Fashion and Famine" (New York, 1854), which is considered her best work. To this succeeded "Wives and Widows," "Married in Haste," "A Noble Woman," "The Reigning Belle," "Bellehood and Bondage," "Lord Hope's Choice," and its sequel, "The Old Countess," and one of her latest, "Phemie Frost's Experiences." For many years previous to her death she was under a contract to write exclusively for the house of T. B. Peterson & Co., Philadelphia, Pa., by whom a uniform edition of her works was published in 1869. Mrs. Stephens was an extreme naturalist in her work, taking her characters and situations from life with marked fidelity. While planning a new work she became a frequent visitor to all kinds of public and charitable institutions, the fear of assault or contagious disease seldom interrupting her quest of scenery and characters. She was one of the most luminous of American authors.

Stevens, Henry, an American bibliographer, born in Barnet, Vt., August 24, 1819; died in London, England, Feb. 28, 1886. He was a student in Middlebury College, Vt., in 1838-'39, and was graduated at Yale in 1843, and at the Cambridge Law School in 1844. In 1845 he established himself in London, England, as an agent for the purchase of books for American libraries, and continued in that employment until his death. While engaged in obtaining rare and valuable books for the Smithsonian Institution, the Library of Congress, and the most noted libraries in the United States, he made a valuable collection of Americana, which he deposited in the Library of the British Museum. He was an indefatigable worker, and compiled and published, among other important bibliographical treatises and catalogues, "A Catalogue Raisonné of English Bibles" (1854); "A Catalogue of American Books in the British Museum" (1856); "Historical Antiquities" (2 vols., 1858); "A Catalogue of the Crowninshield Library" (1860); "A Catalogue of the Library of Baron Humboldt," of which collection he became the purchaser (1861); "Bibliographica Americana" (1861); and "Bibliographica Historica" (1870). Mr. Stevens also rendered a great service to American history by indexing the state papers preserved in London relating to the colonial interests of the principal American provinces. He compiled an index to the papers relating to New Jersey, in nine volumes; to those of Maryland, in ten volumes; to those of Rhode Island, in six volumes; and to those of Vir-

ginia. By resolution of the New Jersey Legislature, he also copied "The Minutes of the Council" into sixteen volumes, and the "Documents relating to the Colonial History of the State of New Jersey," into thirty volumes, all of which, with the index, are deposited in the library of the New Jersey Historical Society in Newark.

Stowe, Calvin Ellis, an American educator, born in South Natick, Mass., April 26, 1802; died in Hartford, Conn., Aug. 22, 1886. He was educated at academies in Bradford, Mass., and Gorham, Me., and at Bowdoin College, Brunswick, Me., graduating at the latter with such honor that he was immediately appointed a tutor in Dartmouth College. While there he married a daughter of Prof. Tyler; but she lived only a short time. He then accepted the appointment to a chair in Lane Theological Seminary, Cincinnati, Ohio, and in 1836 married Harriet Beecher, daughter of Rev. Lyman Beecher, one of the founders of the institution. In the same year he was appointed by the Legislature of Ohio a special commissioner to examine the school system of Prussia and report upon the expediency of adapting it to the public schools of the State. He was also commissioned by the trustees of the seminary to collect a library for that institution while abroad. In 1850 he resigned the chair in Lane Seminary, and accepted a new professorship in Bowdoin College, which he retained until the death of Prof. Stuart, of the Andover Theological Seminary, when he was chosen to succeed him. He occupied the chair twelve years, and in 1863 retired and removed to Hartford, Conn.

Sunderland, Thomas, an American lawyer, born in Terre Haute, Ind., in 1821; died in New York city, Oct. 9, 1886. He studied law early in life, but caught the gold-fever and went to California in 1849. After making a large fortune, he engaged in the practice of his profession, and became Chief-Judge of the Supreme Court of California. He was a resident of Nevada for some time, and was urged ineffectually to become a candidate for United States Senator from that State. In politics he was a Democrat. He had served many years in the California Legislature, and was an active member of the Scientific Society of San Francisco.

Swords, Thomas, an American soldier, born in New York city, Nov. 1, 1806; died there, March 20, 1886. He was graduated at Columbia College in 1826, and at the United States Military Academy in 1829. Immediately after leaving the Academy he was assigned to the Fourth Infantry, and served in various parts of the Southern States for four years, when he was appointed first-lieutenant in the First Dragoons, attaining the rank of captain March 3, 1837. During nearly the whole of the next twelve years he was engaged on frontier duty, serving with Gen. Leavenworth against the Indians in the Southwest, and with Gen. Stephen Kearny in the conquest of New Mexi-

co and California, and being honored with the order to raise the first American flag over Sante Fé. In 1846 he was commissioned major and assigned to the quartermaster's department; but, disliking office-work, he was sent into active service in Mexico at his own request. For meritorious services during that war he was brevetted lieutenant-colonel in May, 1848. From 1848 till 1851 he was on duty in the quartermaster's department in Washington, D. C., and then, after similar service in St. Louis, Mo., and in New Mexico, was ordered to New York city, where he served till 1857, being promoted meanwhile to be deputy quartermaster-general, with the full rank of lieutenant-colonel. On Aug. 3, 1861, he was promoted to be assistant quartermaster-general, with the rank of colonel, and assigned as chief quartermaster of the Department of the Cumberland, with headquarters in Louisville, Ky. Gen. Swords was brevetted a major-general in the regular army for faithful and efficient services during the war, March 13, 1855, and retired Feb. 22, 1869.

Tappan, Mason Weare, an American lawyer, born in Newport, N. H., Oct. 20, 1817; died in Bradford, N. H., Oct. 24, 1886. His father, a lawyer of eminence, early removed to Newport, but in 1818 settled in Bradford. He was a pioneer in the anti-slavery movement, and his house became a resting-place for the fugitives. The son's early education began at home, in the common school, and was supplemented by an academic course at Hopkinton, and at Kimball Union Academy, Meriden. He then studied law with his father, and later with George W. Nesmith, of Franklin, was admitted to the Merrimack County bar in 1841, and soon acquired a large practice. In his boyhood days he resolved to abstain from the use of intoxicants, and he kept his pledge. His early political associations were with the Whig and later with the Free-Soil party. Mr. Tappan represented his town in the Legislatures of 1853, 1854, and 1855, being chosen upon his personal popularity (as Bradford was strongly opposed to him in politics). Being a candidate for Speaker of the House in 1854, he nearly overcame a majority of twenty against his party. The contest culminated in the failure of the Democratic party to choose a United States Senator that year, and the next year in its complete overthrow in the State. The following year, by combination of all anti-Democratic parties, Mr. Tappan was elected to Congress, from the Second District, and was re-elected twice. In Congress he gained reputation as a fearless champion of the Union, and of the principles of the then new Republican party. In the winter of 1860-61 he represented his State on the celebrated Select Committee of Thirty-three, to which was referred so much of the President's annual message as related to the disturbed condition of the country, and he joined C. C. Washburn, of Wisconsin, in a minority re-

port. The majority had agreed to, and submitted, a report recommending amendments to the Constitution, by which the South should acquire all it had demanded for the institution of slavery. The minority report recommended the adoption of the following: "*Resolved*, That the provisions of the Constitution are ample for the preservation of the Union and the protection of the material interests of the country; that it needs to be obeyed rather than amended; and our extrication from present difficulties is to be looked for in efforts to preserve and protect the public property and enforce the laws, rather than to new guarantees for particular interests, or compromises, or concessions to unreasonable demands." On Feb. 5, 1861, this report was submitted, and Mr. Tappan made one of his most patriotic speeches in support of the Government. When President Lincoln called for 75,000 three months' volunteers, Mr. Tappan was one of the earliest to enlist, and was commissioned colonel of the First Regiment from New Hampshire, leaving for the seat of war May 25, 1861. He was offered the command of the Fourth (three years') Regiment, but declined it. Since then he had been occupied with his legal practice. In 1876 he received the appointment of Attorney-General of the State, which office he held until his decease. On Sept. 14, 1886, he presided over the Republican State Convention, and made an elaborate presentation of the party issues of that canvass. In the presidential election of 1872 he supported his life-long friend Horace Greeley. Col. Tappan was thrice married, and left a son by his first wife, and a daughter by his wife now living.

Taylor, William, an American legislator, born in New York city, in 1810; died in Middletown, N. Y., Dec. 18, 1886. He was graduated at Union College in 1838, and at the time of his death was the oldest member of the Psi Upsilon fraternity. For several years he was a school trustee in New York city, and with the late Hon. Townsend Harris designed the Free Academy, since known as the College of the City of New York. In the years 1852-'53 he represented the Thirteenth Assembly District in the Legislature of New York as a Republican, having formerly been a Whig. He had rendered efficient service as a member of the Sunday-School Union, and was at one time associate editor of the "Whig Press" of Middletown.

Terhune, John, an American printer, born in Blaenburg, N. J., May 4, 1793; died in New Brunswick, N. J., Jan. 9, 1886. He was educated in the grammar-school at Princeton, N. J., and in 1812 went into business in New Brunswick as a printer, publisher, book-binder, and stationer, remaining in almost daily charge of his store till the day of his death. He was the printer of the celebrated "Webster's Elementary Spelling-Book," and was a justice of the peace for many years.

Thatcher, Thomas Antony, an American educator, born in Hartford, Conn., Jan. 11, 1815; died in New Haven, Conn., April 7, 1886. He was graduated at Yale College in 1835, and for three years was employed in teaching. In 1838 he was appointed a tutor at Yale, and in 1843 became Professor of Latin, holding the office continuously till his death.

Thaxter, Benjamin, an American merchant, born in Abingdon, Mass., June 2, 1788; died in Boston, Mass., Sept. 6, 1886. He was brought up on his father's farm, and on going to Boston, when quite young, found employment as supercargo on a vessel bound to Mediterranean ports. On the return voyage the vessel stopped in Chesapeake Bay, where it was captured by an English man-of-war. Young Thaxter was taken prisoner, and was in confinement when the news of Com. Perry's victory on Lake Erie was received there. After his release and return to Boston he established a trade with the provinces, and also ran a line of packets between Boston and Philadelphia. He was a director in the Eagle Bank, and one of the trustees of the Provident Institution for Savings.

Thayer, Thomas B., an American clergyman, born in Boston, Mass., Sept. 10, 1812; died there, Feb. 12, 1886. He was educated in the Grammar and Latin Schools of Boston, and entered Harvard College, but was obliged to leave at the end of the first year's course, and soon afterward he became an assistant teacher in the Hawes Grammar-School, Boston. A few years later he devoted himself to the work of the ministry, his first engagement being with the Universalist Society in South Dedham (now Norwood), Mass., where he supplied the pulpit for several months. In June, 1832, he received letters of fellowship from the Boston Association, and was ordained by that body in December following. From 1833 till 1845 he was pastor of the First Universalist Society at Lowell, Mass., and from 1845 till 1851 held pastoral relations with the society in Brooklyn, N. Y., then returning to his former charge in Lowell. Subsequently he was pastor of the Shawmut Universalist Church in Boston for a few years, and then resigned from regular duties. He had made the tour of Europe and the Holy Land, and had long been editor of the "Universalist Quarterly," and one of the editors of the "Christian Leader." He was the author of several books of wide circulation, among which may be cited—"Over the River," "Theology of Universalism," and "Christianity against Infidelity."

Trow, John F., an American printer, born in Andover, Mass., in 1810; died in Orange, N. J., Aug. 8, 1886. He learned the printing trade with Messrs. Flagg and Gould, and after publishing a newspaper in New Hampshire for some time, removed to New York, and in 1852 established a printing-house, and began the publication of "Trow's New York City Directory," which is still issued by a company.

Tuckerman, Edward, an American botanist, born Dec. 7, 1817; died March 15, 1886. He was graduated at Union College in 1837, and at Harvard Law School in 1839. In 1841 he visited Germany and Scandinavia, devoting himself to philosophical, historical, and botanical studies. On his return to the United States, he made botanical excursions through New England, and published papers descriptive of his discoveries. In 1846 he entered Harvard, claiming that his father had broken the family tradition by sending him to another college. Later he entered the Harvard Divinity School, and in 1852 became for the third time an alumnus of Harvard. In 1854 he settled in Amherst, Mass., and was appointed lecturer in history at that college, and subsequently, until 1858, Professor of Oriental History. He was then transferred to the chair of Botany, holding that appointment until his death. Prof. Tuckerman made a specialty of lichenology, in which he had no superior in the United States. His published papers on this subject number nearly fifty, and are devoted to descriptions of the lichens, not only of New England, but also of those found elsewhere in North America. Specimens collected by the United States Exploring Expedition, the Pacific Railroad surveys, and later by the United States geological surveys, were referred to him for examination and classification. Early in life Thomas Nuttall dedicated to him the genus *Tuckermania* founded upon one of the handsomer of Californian Compositae. In 1845 he was made a member of the American Academy of Sciences, and in 1868 was elected to the National Academy of Sciences. Prof. Tuckerman contributed to the "New York Churchman," between 1834 and 1841, numerous articles under the titles of "Notitia Literaria" and "Adversaria," on subjects in history, biography, and theology. He also contributed short articles on antiquarian topics to the "Mercantile Journal" in 1832. During 1832-33 he assisted Samuel G. Drake in the preparation of his "Book of the Indians" and "Indian Wars." Besides his papers on botany, he edited "New England's Rarities Discovered," by John Joselyn (1860), and published "Genera Lichenum: An Arrangement of the North American Lichens" (Amherst, 1872); "A Catalogue of Plants growing without Cultivation within Thirty Miles of Amherst College" (1875); and "A Synopsis of the North American Lichens" Part I, Boston, 1822).

Van Nostrand, David, an American publisher, born in New York city, in December, 1811; died there, June 24, 1886. He entered the book-trade with John B. Havens when fifteen years old, and, after remaining there eight years, established a new house in conjunction with William B. Dwight. This partnership was dissolved three years later, and he found employment for some time with Gen. J. G. Barnard, who was then directing the construction of the fortifications at New Orleans. Be-

ing naturally inclined to scientific study, his association with military and professional men gave him an opportunity to extend his study, and at the same time it led him to undertake to procure for military officers standard works on scientific topics published abroad. From this beginning he became a well-known importer, and then publisher, of military and scientific books. He was one of the earliest members of the Union League Club, and was also a member of the Century Club, and of the St. Nicholas and Holland societies.

Van Raust, Lydia, an American centenarian, born in Stamford, Conn., Feb. 12, 1785; died in New York city, Dec. 14, 1886. Her maiden name was Dann, and she was the youngest of seven children, all of whom attained extreme old age. In 1811 she married John Van Raust, of New York, and they settled in the fashionable part of the city at that time, No. 3 Bowling Green. Mr. Van Raust was a gentleman of leisure, had a country-seat near the present Lafayette Place, and was in the habit of shooting over the fields around Greenwich village and the swamps then existing along Canal Street. Mrs. Van Raust had been a widow sixty years, and a member of the Baptist Church thirty-seven years. She retained all her faculties to the last.

Vodges, William, an American mathematician, born in Philadelphia, Pa., in 1802; died there, Jan. 29, 1886. He began life as a teacher, and, after studying law, was admitted to the bar in Philadelphia, in 1832. In 1838 he was appointed Professor of Mathematics in the Philadelphia High-School, and was so employed till 1862, when he resumed the practice of law. He was the author of "United States Arithmetic," and "Elementary Treatise on Mensuration and Practical Arithmetic" (1845). In late years he became widely known by his decisions on legal points in insanity cases.

Ward, Durbin, an American lawyer, born in Augusta, Bracken County, Ky., Feb. 11, 1819; died in Lebanon, Ohio, May 22, 1886. While a boy he removed with his parents to Everton, Ind., and was there brought up on a farm. At the age of eighteen, having acquired, by his own unaided studies, a knowledge of the rudiments of Latin, algebra, and geometry, he entered Miami University, Oxford, Ohio, and maintained himself there for two years. He studied law under Thomas Corwin, whose partner he was for three years, till elected Prosecuting Attorney of Warren County. After holding this office for six years, he was elected to the first Legislature chosen under the new Constitution. During this session Judge Bellamy Storey and Hon. William M. Corry endeavored to induce the Legislature to loan the public arms to Louis Kossuth, then an exile in this country. Mr. Ward was one of the most active of those who defeated the measure in the House after it had passed the Senate. From the election of Zachary Taylor to the presidency till 1855, Mr. Ward took no active part

in politics. He had previously affiliated with the Whig party, and upon its dissolution connected himself with the Democratic. In 1856, against his remonstrance, he was given the Democratic nomination for Congress in a strong Republican district, and was defeated. In 1858 he was defeated as candidate for Attorney-General. Two years subsequently he was a delegate to the Charleston and Baltimore Conventions, and warmly supported Stephen A. Douglas. At the outbreak of the civil war he enlisted in the national army as a private. He began his military career in West Virginia, under Gen. McClellan, and afterward, becoming major of the Seventeenth Ohio Infantry, served for the remainder of the war under Gen. Thomas. At Chickamauga he was shot through the body, and his left arm was thereby disabled for life. He was then mustered out of the service without his knowledge, but hearing of it, went to Washington, got the order revoked, and returned to the field, carrying his arm in a sling during the whole of the Atlanta campaign, and was brevetted brigadier-general. In November, 1866, he was appointed U. S. District Attorney for the Southern District of Ohio, and served for nearly three years, when he was removed by President Grant. With the exception of a brief service in the State Senate in 1870, he had held no other office.

Warren, Susanna, an American centenarian, born in St. Augustine, Fla., in 1750 (?) ; died in Sassafras, Seminole Nation, Indian Territory, Dec. 5, 1886. She was born a slave, and was the property of Spanish masters till 1818, when, with other slaves, she fled from the town of Pensacola at the time of its capture by Gen. Jackson. Residing in the Seminole country till the second treaty of peace with these Indians, she came to be regarded as their property, and was removed with them to the Indian Territory. She left a daughter, living in Austin, Texas, at the age of ninety-six, and many grandchildren, some of them nearly seventy years old, in the Seminole Nation.

Welsh, John, an American merchant, born in Philadelphia, Pa., Nov. 9, 1805; died there, April 10, 1886. He received a collegiate education, and then entered upon the business of importing sugar with his brothers, being at the time of his death senior partner in the firm, which had been in existence for over fifty years. During his long career he had been President of the North Pennsylvania Railroad, a member of the Select Council, member of the Sinking Fund for twenty years, President of the Board of Trade for fifteen years, President of the Merchants' Fund the same length of time, Trustee of the University of Pennsylvania for twenty years, and a Commissioner of Fairmount Park for sixteen years, being president of the board at the time of his death. He was chairman of the Finance Committee of the Centennial Commission, and, after the accounts of the Great Exhibition were closed up,

the citizens of Philadelphia presented him a commemorative gold medal, and also gave \$50,000 to the University of Pennsylvania to endow "The John Welsh Centennial Professorship of History and English Literature." He was appointed minister to Great Britain on Oct. 30, 1877, and held the office nearly two years, when he resigned. Both the University of Pennsylvania, and Washington and Lee University, of Virginia, conferred the degree of LL. D. upon him, and he received a large number of foreign decorations for his courtesies during the Centennial Exhibition.

Werden, Reed, an American naval officer, born in Pennsylvania, in 1818; died in Newport, R. I., July 12, 1886. He was appointed midshipman Jan. 9, 1834, and served on various vessels during the next twelve years. He commanded a party of seamen on shore at the capture of Tuxpan, Mexico, and was commissioned lieutenant Feb. 27, 1847. From 1847 till 1860 he was on duty with the Pacific and Home squadrons, at the Naval Observatory, Washington, D. C., and off the coast of Africa. In 1861 he commanded the steamer "Stars and Stripes," of the North Atlantic blockading squadron, and took part in the capture of Roanoke Island and Newbern. He commanded the "Conemaugh" in 1862-'63; was commissioned as commander July 16, 1862, and ordered to the Navy-Yard at Philadelphia. He was fleet-captain of the Eastern Gulf blockading squadron in 1864-'65, and he succeeded in blockading the Confederate ram "Stonewall" at Havana, with the "Powhatan," till she surrendered to the Spanish authorities. He was commissioned as captain, July 25, 1866; and was stationed at the Navy-Yard, Mare Island, Cal., in 1868-'69. In 1875 he was commissioned a rear-admiral and placed in command of the Pacific squadron, and in 1877 returned home and was retired.

Whittlesey, Charles, an American geologist, born in Southington, Conn., Oct. 8, 1808; died in Cleveland, Ohio, Oct. 18, 1886. He early removed to Ohio, and began his education in a log school-house in Talmadge Centre, after which he was appointed to the United States Military Academy where he was graduated in 1831. He entered the army as lieutenant in the Fifth Infantry, and after serving on frontier duty at Fort Howard, Wis., and in the Black Hawk War of 1832, he resigned and studied law. After being admitted to the bar, he entered on the practice of his profession in Cleveland, where in 1836-'37 he was connected with the "Herald" in an editorial capacity. During 1837-'38 he was engaged on the Ohio Geological Survey, and did much in developing the coal and iron deposits of that State. From 1847 till 1851 he was employed by the United States Government in mineral surveys of the Lake Superior and upper Mississippi regions. Later, he was engaged as a mining engineer in Michigan. During 1858-'60 he was associated with the Wisconsin Geological

Survey. In February, 1861, he was enrolled in a company that tendered its services to Gen. Scott to protect the President-elect, Mr. Lincoln, on his way to Washington. During the following April he was made assistant quartermaster-general on the staff of the Governor of Ohio. Subsequently he was State Military Engineer for the Ohio troops in West Virginia, after which he became colonel of the Twentieth Ohio Volunteers, and then Chief-Engineer of the Department of Ohio. He was present at Fort Donelson, and commanded the Third Brigade in Gen. Wallace's division at Shiloh; but failing health compelled him to resign in April, 1862. Subsequently he resumed his scientific and literary labors, and founded the Western Reserve Historical Society of Cleveland, of which he was president for many years. Besides his reports for the geological surveys, he published "Descriptions of Ancient Works in Ohio" (*Smithsonian Contributions*, 3, Washington, 1851); "On Fluctuations of Level in the North American Lakes" (S. C. 6, 1860); "Ancient Mining on the Shores of Lake Superior" (S. C. 13, 1863); "On the Fresh-Water Glacial Drift in the Northwestern States" (S. C. 15, 1866); "Life of John Fitch," in Jared Sparks's series of "American Biography" (Boston, 1845); and "Early History of Cleveland and Vicinity" (Cleveland, 1867).

Wilder, Marshall P., an American merchant, born in Rindge, N. H., Sept. 22, 1798; died in Boston, Mass., Dec. 16, 1886. In Boston, in 1825, he established a wholesale business in West Indian goods, to which he devoted himself till 1837, when he became a partner in the commission-house of Parker, Blanchard & Wilder. In 1839 he was elected a member of the State House of Representatives, ten years later he served one term in the Executive Council, and in 1850 was President of the State Senate. He was active in the formation of the "Constitutional Union party," and chairman of the Massachusetts delegation to the convention that nominated Bell and Everett in 1860. Throughout the civil war he was a firm supporter of the national cause. For sixty years he was an active director in one of the Boston banks, and for nearly the same period a director in one of the insurance companies. He was the founder of the Massachusetts Agricultural College and State Board of Agriculture, and had been President of the United States Agricultural Society; was President of the Norfolk County Agricultural Society for twenty years; President of the New England Historical-Genealogical Society for sixteen years; and President of the Massachusetts Horticultural Society for eight years. He was also a leader in the movement that gave to Boston the Natural History rooms and the Massachusetts Institute of Technology. In the multitude of his trusts, he was most widely known for his agricultural, pomological, and genealogical labors.

Willis, Benjamin A., an American lawyer, born in Roslyn, Queens County, N. Y., March 24, 1840; died in New York city, Oct. 15, 1886. He was graduated at Union College in 1861, and after studying law at the National Law School, Poughkeepsie, N. Y., and with William M. Graham in Brooklyn, was admitted to the bar the same year. He practiced till June, 1862, when he raised a company at his own expense, and with them was mustered into the national service as a part of the One Hundred and Nineteenth New York Volunteers. Going to the field as captain of this company, he became major of the regiment and then colonel of the Twelfth Regiment, taking part in the battles of Chancellorsville, Gettysburg, Wauhatchie, and Chattanooga, and being honorably discharged in 1864. On his return he resumed the practice of law, and began to take an active interest in politics. In 1872 he spoke in behalf of the Liberal-Republican candidates, and in 1874 was elected a member of Congress from the Eleventh New York or "millionaire" District as a Liberal-Republican. In this Congress he served as a member of the Committee on Naval Affairs. In 1876 he was re-elected, defeating Levi P. Morton, Republican, and becoming chairman of the Committee on Expenditures in the Navy Department, and in 1878 he was defeated by Mr. Morton. He subsequently devoted himself to the law and to real-estate business.

Wilmarth, Seth, an American machinist, born in Brattleboro', Vt., Sept. 8, 1810; died in Malden, Mass., Nov. 5, 1886. In early life he was apprenticed to a machinist in Pawtucket, R. I., and in 1855 became superintendent and master-mechanic of the Charlestown Navy-Yard. He occupied this post over twenty years, and during that period he made many permanent and valuable improvements in several departments of the station, taking out patents, among which were two for the hydraulic lift and his revolving turrets. For the former he received from the Government the sum of \$50,000.

Yulee, David Levy, an American lawyer, born in the West Indies in 1811; died in New York city, Oct. 10, 1886. His father's name was Levy, and David went by it till 1845, when he adopted that of Yulee, by which he was afterward known exclusively. He was taken to Virginia when very young, and there received the rudiments of a classical education and studied law. In 1824 he removed to Florida, where he engaged in the practice of his profession and in agriculture. From 1841 till 1845 he was a delegate to Congress from the Territory of Florida, under the name of Levy, and then under that of Yulee was a delegate to the convention that formed the State Constitution. In 1845 he was elected the first representative of Florida in the United States Senate, and was continued in the office by re-elections till 1861, when he withdrew to give his services to the Confederacy. While in the

Senate he was a member of the Committee on Post - Offices and Post - Roads. He served throughout the war as a member of the Confederate Congress, and at its termination he was confined for some time as a prisoner of state in Fort Pulaski. At one time he was President of the Atlantic and Gulf Railroad in Florida, but for a number of years had employed himself with farming.

OBITUARIES, FOREIGN. **Aigner, Joseph,** a German painter, born in 1815; died Feb. 19, 1886. He had acquired some fortune and reputation as a painter when the Revolution of 1848 broke out. His popularity caused his election as commandant of the Insurgent Academy Legion, an honor that afterward led to his arrest by Prince Windischgrätz's orders. He was tried by a court-martial and sentenced to death, but, by the intercession of some ladies of the Austrian aristocracy, he was pardoned. Some years later Prince Windischgrätz sat to him for a portrait. The grim old hero asked Aigner why he had been sentenced to be shot, and Aigner replied, "If your Highness has forgotten, I shall do well not to remind you."

Aksakoff, Ivan Sergervich, a Russian journalist, born in the province of Orenburg, Oct. 7, 1823; died in Moscow, Feb. 9, 1883. He was educated in the St. Petersburg School of Jurisprudence, and began his public career in the Moscow Senate, served afterward in the Ministry of the Interior, and held other public offices. After serving as a volunteer in the Crimean War, he returned to Moscow in 1858, and began his literary career as editor of the "*Besieda*." He afterward started the "*Day*," "*Moskva*," and other papers. His last journal was the "*Russ.*" M. Aksakoff received many warnings from St. Petersburg on account of the opinions he expressed against the foreign policy of the Government in regard to Bulgaria. He wielded an enormous power from Moscow during the last Eastern crisis, preceding the war of 1878, at which time he was President of the Moscow Slavonic Society, organized the Bulgarian militia in Bessarabia, and supplied them with arms, the gifts of private subscribers.

Amos, Sheldon, an English judge in Egypt, born in England about 1837; died near Alexandria, Egypt, Jan. 2, 1886. In 1859 he was graduated at Clare College, Cambridge, devoted himself to law, and was called to the bar in 1862. He was Professor of Jurisprudence at University College, London, afterward resided in Australia and Egypt, and after the reorganization of the criminal administration he was appointed English judge of the new native Court of Appeals. He was the author of many legal treatises.

Anderson, Sir John, a British inventor, born at Woodside, near Aberdeen, Scotland, in 1814; died at St. Leonard-on-the-Sea, July 28, 1886. He was employed for ten years in the engineering department of a cotton-mill. In 1839 he left Woodside for Green-

wich, and in 1842 was appointed to take charge of the brass-gun foundry at Woolwich Arsenal. Here he set himself to introduce reforms, revolutionizing the system of working, and inventing new machines to be used in the construction of cannon and in the casting of rifle-bullets. One bullet-machine invented by him turned out 40,000 bullets an hour, at the cost of 5*£d.* a thousand, whereas by the other method of casting they cost 5*s.* a thousand. He also invented a machine for grinding. He roused a strong opposition in the gun-trade in London and Birmingham by the statement that he could produce five hundred muskets a day; but after he presented his plans to the Government, a factory was established at Enfield, and he produced 100,000 muskets with bayonets complete, at a cost of less than £2 apiece. In 1859 the English Government undertook the manufacture of Armstrong guns, and he was chosen to superintend the work. He was appointed inspector of machinery, served as a juror at the International Exhibitions at London, Paris, and Vienna, in 1864, 1867, and 1873, and was at the head of the British jurors at the Philadelphia Exhibition of 1876 and in Paris in 1878. In recognition of his services at the exhibitions, he was nominated a Companion of the Order of Francis Joseph of Austria, and also made an officer of the Legion of Honor. He was knighted in 1878. In 1881 he presented to his native city a free library, which cost £6,000.

Archer, Frederick James, an English jockey, born in Prestbury, near Cheltenham, England, Jan. 11, 1856; died in Newmarket, Nov. 8, 1886. He was the son of a cross-country rider, and from earliest childhood was at home on the back of a donkey or pony. His first winning mount was a steeple-chase at Bangor, when he was eleven years old. In 1868 he was apprenticed to Matthew Dawson, of Newmarket, and almost immediately began his racing career. His first great victory was the Cesarewitch stakes, run in 1872, riding 77 pounds. Soon afterward he became Lord Falmouth's chief jockey, in whose employ he won some of his most famous victories. He won the Derby in 1877, in 1880, in 1881, in 1885, and in 1886; the French Derby in 1880 and in 1883; and the Grand Prix of Paris in 1882. His record includes 2,749 winnings, and at the time of his death he had ridden more horses than any jockey living. He acquired a large fortune.

Assolant, Alfred, a French novelist and critic, born at Aubusson in 1827; died in Paris, March 6, 1886. He was educated at the Ecole Normale, and for some time was Professor of History in various schools. He subsequently embraced the journalistic profession. He went to the United States, and, after returning to France, published his experiences under various forms in the "*Revue des Deux Mondes.*" In addition to writing many novels, he was also a contributor to the "*Presse*," the "*Gau-*

lois," etc. He brought a charge of plagiarism against Victorien Sardou, alleging that the latter's play of "Oncle Sam" was taken from the "Scènes de la Vie des États-Unis," which he had published in 1858. The matter was referred to a commission of authors, who gave their verdict in favor of M. Sardou.

Barghash, Seyyed Mohammed, Foreign Minister of the empire of Morocco, died at Tangier in November, 1886. In his youth he was a talmid or theological student, and attended the schools of Fez and Mequinez, where he took his degree of talid or doctor. He subsequently abandoned theological studies, devoted himself to trade, and traveled frequently as far as Gibraltar. He obtained a reputation as a traveler, and at times was intrusted with commissions by the Governor of Tangier. During his diplomatic difficulties with Spain the late Sultan of Morocco, Sidi Muley Hassan, discovered the necessity of a foreign minister, and appointed Mohammed Barghash to the post. In 1882 he attended the international congress on consular protection at Madrid. As Foreign Minister he resided at Tangier, and was the sole medium of communication between the Sultan and foreign powers.

Barham, Richard Harris Dalton, an English author, born in Westwell, Kent; died at Dawlish, England, April 28, 1886. He was educated at St. Paul's School and graduated at Oxford, after which he settled in Llowlorth, near Cambridge, where he resided till the autumn of 1863, when, on account of failing health, he sought a warmer climate. After visiting Torquay, he settled at Dawlish, where he was attracted to geological studies. A valuable collection of fossils was presented by him to the town of Dawlish, as the nucleus for a museum. He was the author of "Life of Theodore Hook," and "Life of Rev. Richard Harris Barham," also of a novel entitled "A Rubber of Life," which was dramatized for a London theatre.

Barrow, Percy Harry Stanley, an English soldier, born in England, Oct. 15, 1848; died at Cairo, Jan. 14, 1886. He entered the army in 1868, and served with distinction in the Zulu campaign in 1879, the Transvaal campaign in 1881, and the Egyptian expedition in 1884. At the battle of El Teb he received the wound that, two years later, caused his death.

Baudry, Paul, a French artist, born at Bourbon-Vendée in 1828; died at Paris, Jan. 6, 1886. He won the Prix de Rome in 1850, and painted the decorations for the new Opera-House in Paris.

Bayne, Herbert Andrew, a Canadian educator, born in Londonderry, N. S., Aug. 16, 1846; died in Pictou, Sept. 16, 1886. He was graduated at Dalhousie College, Halifax, in 1869, previous to which he had been Principal of Pictou Academy from 1865 till 1867. He again filled this office from 1869 till 1873. During the latter year he went abroad and studied the sciences in Leipsic and in Heidelberg, where he received the degree of Ph. D.

in 1876, also in Berlin and in Paris. He returned to Nova Scotia in 1877, and became Professor of Mathematics in Halifax High-School, and Professor of Organic Chemistry in Dalhousie College, where he remained until 1880. He then became Professor of Physics and Chemistry in the Royal Military College of Canada, Kingston, which chair he held until his death. In 1885 he was appointed a member of the Cartridge Commission, and performed most of the chemical analyses required for the investigations of the board. He was a Fellow of the Royal Society of Canada, and member of numerous scientific bodies, including the Chemical Societies of Paris and Berlin.

Bellegarde, Count Augustus von, Austrian soldier, born in Austria in 1827; died in Cairo, Jan. 15, 1886. He was a brilliant cavalry officer, a lieutenant field-marshall in the Austrian army, was at one time chairman of the Anglo-Austrian Bank, and was involved in reckless speculation and some questionable financial transactions.

Bert, Paul, a French statesman, born in Auxerre, Oct. 17, 1833; died in Anam, Nov. 11, 1886. His first studies were in the college of his native town, after which he went to Paris, where he studied medicine, and was graduated in 1863. In 1866 he received the degree of Doctor of Natural Sciences, and became an assistant of Claude Bernard in the College of France. During the following year he was chosen professor in the Faculty of Sciences at Bordeaux, where he devoted special study to the subject of physiology. His investigations in this direction attracted public attention, and he was called to the Professorship of General Physiology in the Faculty of Sciences in Paris in December, 1869, succeeding Bernard. While occupying this chair he continued his researches for ascertaining the conditions of human existence at different altitudes, and presented a series of memoirs on this subject to the Academy of Sciences, for which he received in 1875 the biennial prize of 20,000 francs. Subsequent to the events of September, 1870, M. Bert became Secretary-General of the Préfecture of the Yonne, and in January, 1871, préfet of the Département du Nord. This office he relinquished when Gambetta resigned from the War Department. He was elected to the National Assembly in 1874, took his seat among the members of the Extreme Left party, and was re-elected in 1876 and 1878. During his legislative career he was prominent in all questions concerning public education, and was among those who recommended the exclusion of the clergy and members of religious orders from the schools of France. He also advocated the giving of an annual pension of 12,000 francs to Pasteur, and in 1877 was one of the 363 deputies that refused to give the De Broglie Cabinet a vote of confidence. From 1877 till 1879 he represented the canton of Ailtant in the General Council of the Yonne. In 1881 he became Minister of Public Instruction in the

short-lived Cabinet of Gambetta. His professed atheism and his intense hostility to the Ultramontane portion of the Roman Catholic Church caused his appointment to be regarded with surprise and indignation. In January, 1886, he was appointed French Governor-General of Tonquin and minister-general to the court of Anan, where his duties were to be largely those of organization; but, coming in contact with the military and naval authorities, he suffered much from their interference. Besides being a member of numerous scientific societies, M. Bert became President of the French Biological Society in 1878, and in 1882 was elected a member of the French Academy of Sciences. His literary work included the scientific feuilleton furnished for many years to the "République Française," Gambetta's journal, numerous memoirs on scientific subjects and the following works: "Revue des Travaux d'Anatomie et de Physiologie publiés en France pendant l'Année 1864" (1866); "Notes d'Anatomie et de Physiologie comparées" (second series, 1867-'70); "Recherches sur le Mouvement de la Sensitive" (1867-'70); "Leçons sur la Physiologie comparée de la Respiration" (1869); "Recherches expérimentales sur l'Influence que les Modifications exercent sur les Phénomènes de la Vie" (1874); "La Pression barométrique: Recherches de Physiologie expérimentales" (1877); "La Science expérimentale" (1878); "La Morale des Jésuits" (1880); "Leçons, Discours, et Conférences" (1880); "Leçons de Zoologie Professées à la Sorbonne" (1881); "La Première Année d'enseignement scientifique: Sciences Naturelles et Physiques" (1882); "L'Instruction civique à l'École" (1882); and "Discours Parlementaires, 1872-1881" (1882). See "The French Minister of Public Instruction," in "Harper's Magazine" for March, 1882.

Binnie, William, a British educator, born in 1823; died in Aberdeen, Scotland, in September, 1886. He was educated at Glasgow University, studied theology in a German university, and was ordained in 1849 a minister of the Reformed Presbyterian Church at Stirling, Scotland, and in 1862 was appointed Professor of Divinity in the Theological Hall of the Reformed Presbyterian Church. He published "The Psalms, their History, Teaching, and Use," and a work on "The Church."

Biondelli, Bernardino, an Italian philologist, born in Verona in 1804; died in September, 1886. He studied at the University of Padua, and subsequently at Venice and Milan, where he directed his attention principally to archaeology and philology. In 1860 he became Professor of Archaeology and Numismatics at the Royal Academy in Milan. He wrote several works on philology, including one on the languages of Europe, published in 1841, another on the Gallo-Italian dialects, and a series of pamphlets on the Aztec language. He also published a work entitled "The Cremation of the Human Body after Death."

Borro, Luigi, an Italian sculptor, born in 1827, died in Venice, Feb. 12, 1886. He was the designer of the monument to Daniel Manin. He left a large and valuable collection of paintings, chiefly of the older Italian masters, which he jealously refused to allow any foreign visitors to inspect.

Bourchardat, Apollinaire, a French chemist, born in the Isle sur le Serein, Yonne, in 1806; died in Paris, April 7, 1886. In early life he went to Paris, where he studied medicine and the allied sciences. In 1832 he was made a Fellow of the Medical Faculty, and in 1834 became the first pharmacist-in-chief to St. Antoine Hospital. He also held a similar place in the Hôtel-Dieu, where he remained until 1855, when he resigned his office to devote his attention exclusively to scientific pursuits. In 1838 he was a candidate for the chair of Pharmacy and Organic Chemistry in the Faculty of Medicine in the College of France; but the choice fell upon Dumas. He was elected a member of the Academy of Medicine in 1850, and after public competition in 1852 became Professor of Hygiene. He was a member of scientific societies, and was appointed a member of the Council of Health in 1845. At the time of his death he was a commander in the Legion of Honor. In addition to numerous botanical and medical memoirs, variously contributed, which were collected under the title of "Recherches sur la Végétation" (1846), he edited monthly the "Répertoire de Pharmacie," beginning in 1847, and annually from 1841 till 1855 the "Annuaire de Thérapeutique." His larger works include: "Cours de Chimie Élémentaire avec ses Principales Applications à la Médecine et aux Arts" (1834); "Cours des Sciences Physique" (1841); "Éléments de Matière Médicale et de Pharmacie" (1838); "Nouveau Formulaire Magistrat" (1840); "Formulaire Vétérinaire" (1849); "Opuscule d'Économie rurale" (1851); "Archives de Physiologie" (1854); "L'Eau de Vie, ses Dangers" (1863); and "La Glycosurie, ou Diabète Sucré" (1875).

Bourée, Nicolas Prosper, a French statesman, born in Boulogne-sur-Mer in 1811; died in Paris, July 11, 1886. He entered the office of the Ministry of Foreign Affairs in 1836, and in 1840 he was appointed to a consulship at Beyrut, where six months later he was promoted to the rank of Consul-General, and in this capacity took part in the negotiations for the new organization of the Lebanon. In 1851, as chargé d'affaires at the Court of Morocco, he was present at the bombardment of the town of Salé. In the following year M. Bourée was appointed French minister to China, but in 1853 and 1854 was charged with the conduct of an exploration-mission in Turkey connected with the approaching war. In 1855 he was made minister at Teheran, where he concluded a treaty of commerce between France and Persia. He subsequently went on a mission to Germany, after which, having been for two

years minister to Athens, he was appointed to Portugal, where he remained for three years. In 1866 M. Bourée was sent as an ambassador to Constantinople, and to him is awarded the merit of having persuaded Sultan Abdul-Aziz to visit Europe, this being reputed the first occasion when an Ottoman Sultan had visited European capitals. M. Bourée retired from the embassy at Constantinople in 1870, since which time he had occupied various offices at home. Latterly he was brought into notice by his unsuccessful negotiation with China in reference to the proposed treaty in 1882-'83, the failure of which was the signal for the vigorous renewal of hostilities.

Bourgeoise, Baron Charles Arthur, a French sculptor, born in Dijon in 1838; died in Paris, Dec. 14, 1886. He was the pupil of Duret and Guillaume, and in 1863 obtained the Prix de Rome for his group "Nisus and Euryalus." His principal works are: "The Serpent-Charmers" (1864); "La Pythie de Delphes"; "Un Esclave"; "La Religion"; "Circe"; and "Hero and Leander."

Boyer, Léon, a French engineer, born in 1850; died in Panama, May 1, 1886. He succeeded M. Dinglers as engineer of the Panama Canal, and went into that fatal climate contrary to the advice of his physicians.

Burgess, Henry, an English editor, born in 1808; died in London, in February, 1886. He received a collegiate education, studied for the ministry, and was ordained in 1851. In 1861 he settled in the vicarage of Whittlesey, St. Andrew, Cambridgeshire, where he remained for twenty-five years. He was for many years editor of the "Clerical Journal," and of the "Journal of Sacred Literature." He was also the author of theological and other works, among which are "The Bible Society vindicated in its Decision respecting the Bengali New Testament," "The Power of Personal Godliness in Evangelizing Mankind," "The Reformed Church of England in its Principles and their Legitimate Development," "Essays, Biblical and Ecclesiastical, relating Chiefly to the Authority and Interpretation of Holy Scriptures," and "Disestablishment and Disendowment."

Burstall, Edward, an English engineer, born in Stoke, England, in 1818; died in Ramsgate, July 13, 1886. He entered the navy in 1833, became a midshipman in 1840; was promoted in 1846 to the rank of lieutenant; and engaged in 1852 in laying the first submarine telegraph cable from Dover to Calais, for which he received a present of plate. He subsequently laid the cable from Orfordness to the Hague. During the war with Russia, he was engaged in operations in the Baltic, and was at the taking of Bomarsund, and at that time was especially mentioned in the dispatches for valuable services in taking up the combined English and French fleets when the lights and buoys had been removed or misplaced by the Russians. For this service he was promoted to

commander. In 1857 he was made Secretary to the Conservators of the River Thames. His opinion was often in request in connection with marine engineering questions, especially with reference to harbors, docks, bridge-foundations, and sea-defenses.

Busk, George, an English naturalist and surgeon, born in St. Petersburg, in 1808; died in London, Aug. 16, 1886. At an early age he was brought to England, and became a member of the Royal College of Surgeons in 1830. He was appointed surgeon to the Seamen's Hospital-ship Grampus, where he had the opportunity of studying diseases from all parts of the world, and distinguished himself by papers on scurvy, parasites that infest tropical food, and malignant diseases of pestilential climates. In 1855 he abandoned surgery and devoted himself to science, especially to the study of the polyzoa, and wrote several works on this class of marine animals. Actuated by his sympathies for the lower animals, he accepted the post of official inspector to prevent needless vivisection.

Cadecott, Randolph, an English artist, born in Chester, England, in 1846; died in St. Augustine, Fla., Feb. 12, 1886. When only six years old he attracted attention by his cleverness in carving familiar animals from wood, and making clay models from them, and during his school-days he was mostly given to loitering in the woods, and sketching whatever pleased his fancy. On leaving school he was placed in a bank in Chester, and subsequently in one in Manchester. In the latter city he received the first encouragement in his art-studies, and, after a service of five years in the bank, he withdrew and devoted himself wholly to his pencil and brush. His first published drawings appeared in the "Sphinx," a serio-comic paper, supported by the Brasenose Club, which embraced the leading literary, artistic, and scientific men of the city. While contributing sketches to this and the society and illustrated papers of London, he took a course of instruction at the Slade School of Art, London, and then began his career as an illustrator of books. In 1878 he represented the "Graphic" at the Vienna Exposition, and illustrated Henry Blackburn's "Harz Mountains"; in 1875-'76 he illustrated a number of Christmas-books, and Washington Irving's "Old Christmas," and "Bracebridge Hall"; in 1878 he produced his version of "John Gilpin" and "The House that Jack Built"; in 1879 "The Babes in the Woods," "The Song of Sixpence," and "The Three Jovial Huntsmen"; besides illustrating Mrs. Comyns-Carr's "North Italian Folk" and Henry Blackburn's "Breton Folk," and in 1883 he published "A Sketch-Book," and "Some of Aesop's Fables, with Modern Instances." Although his reputation rests upon his book illustrations, he executed some choice decorative work, and exhibited occasionally at the Grosvenor Gallery on canvas, and in metal and plaster.

Cardwell, Edward, Viscount, an English statesman, born in Liverpool, July 24, 1813; died at Torquay, France, Feb. 15, 1886. After a brilliant college course he was called to the bar, and in 1842 he entered Parliament as member for Clitheroe, and, although a Conservative, he agreed with the Liberals on the question of free trade. He was appointed Secretary of the Treasury by Peel in 1845. In 1847 he was elected to Parliament from the city of Liverpool. In 1853 he became member for Oxford, and represented that borough until 1874, when he was raised to the peerage by Mr. Gladstone. When Lord Aberdeen formed the coalition government in 1852, Mr. Cardwell was appointed President of the Board of Trade, but had no seat in the Cabinet. On Lord Palmerston's resuming the government in 1859, he became Chief Secretary for Ireland, with a seat in the Cabinet. In 1860 he was firmly persuaded that he had settled the Irish land question by an act empowering limited owners to give leases, but the act was so tightly drawn that few took advantage of it. In March, 1864, he became Secretary for the Colonies, and won general approval in the course that he pursued in regard to the Jamaica riots in 1865. When Mr. Gladstone became Prime Minister in 1868, he appointed Mr. Cardwell Secretary for War. His position was made arduous by the neutrality questions arising during the course of the Franco-Prussian War, especially with regard to supplying France with coal. With the passing of the army regulation bill his public services almost came to an end. This bill, passed in 1871, provided for the abolition of the purchase system of promotion in the army, the compensation of the holders of commissions, a large increase in the strength of the army, the substitution of a short for a long term of service, and the establishment of localized military centers.

Chaple y del Corral, Juan Francisco, a Cuban scientist, born in Havana, Cuba, June 26, 1802; died there, Oct. 30, 1886. He was graduated at the College of San Carlos, Havana, in 1820, studied law and political economy in the University of Havana, and received the degree of bachelor of civil law in 1823. He was appointed in 1826 to a professorship, but continued his studies in canon law. The degree of bachelor in the sciences was conferred on him in 1836, and he was immediately afterward appointed to the chair of justice, and made dean of the faculty. He held several other places in the institution, and his services in the cause of higher education were recognized by the Spanish Government, which conferred on him in 1839 the Cross of the Royal American Order of Isabella the Catholic. In 1842 he left the university, and devoted the remainder of his life to the task of reforming and developing primary education in Cuba. He had joined the Real Sociedad Económica of Havana in 1832, and had been nominated

inspector of its schools. He entered on the duties of the office with enthusiasm, refusing a salary, and spending his entire income in increasing the number and adding to the efficiency of the schools. He visited one or more of them daily, correcting the abuses that prevailed in them, and abolishing the practice of corporal punishment. He also visited the homes of the poor, and persuaded them to send their children to school, he himself providing books and clothing when needed. He wrote a series of text-books, and published them at his own expense. Two of these works, "El Compendio de Moral y Economía Doméstica," and a revised edition of Fleury's "Catechism," are used in all the schools of Cuba. He was also a member of the Section of Industry and Commerce of the Real Sociedad Económica, and in this capacity contributed much to the success of the Exhibition of Arts and Industries held in Havana in 1852. In recognition of his services in the cause of public education, his portrait was placed in the principal hall of the college, and in 1880 a hall was added to the Havana Library, called La Sala Chaple.

Churchill, Henry Adrian, died in Palermo, July 12, 1886. He was educated at the College of Louis le Grand, Paris, and at Constantinople, and became distinguished as a linguist. In 1848 he was appointed assistant surveyor to the British Commission for the Tureo-Russian boundary, and from 1850 till 1852 acted as secretary and interpreter to the commission. He was afterward an *attaché* at Teheran, and in 1854 was secretary and interpreter to the British commissioner with the Turkish army in Asia. The third class of Imperial Order of the Medjidie was conferred upon him by the Sultan in recognition of his conduct and gallantry at the battle on the Heights of Kars in September, 1855. The garrison of Kars being subsequently forced to capitulate, Mr. Churchill surrendered himself a prisoner to the Russian forces under Gen. Mouravieff. In 1856 Mr. Churchill was appointed consul in Bosnia. He was employed in special service on the Montenegrin frontier from April till July, 1858, and in September, 1858, appointed consul for Moldavia, to reside in Jassy. In July, 1859, he was made consul-general in Moldavia, and in December, 1862, he was appointed consul-general in Syria, to reside at Beirut; and in the following April he was made consul-general at Algiers. This post he resigned in January, 1867, and was immediately afterward appointed by the India Office political agent and consul-general at Zanzibar, but retired on a pension in 1872. Three years later Mr. Churchill was appointed consul of Ghilan, Mazanderan, and Asterabad, and went to reside at Resht. He held the post of consul for Sicily from 1879.

Collier, Sir Robert, Lord Monkswell, an English judge, born at Plymouth in 1817; died near Cannes, France, on Oct. 27, 1886. He was

graduated at Cambridge, entered Parliament in 1852, and was appointed Solicitor-General in October, 1863, and Attorney-General in December, 1868. In November, 1871, he was appointed a paid member of the Privy Council. He wrote several law-books.

Collin, Edvard, a Danish littérateur, born in 1808; died in Copenhagen, April 12, 1886. He was a friend of Hans Christian Andersen, and cultivated the friendship of all the leaders of Danish literature. His death removed a central figure from the literary and musical world of Copenhagen. He was the author of "Anonyms and Pseudonyms," and "Andersen and the House of Collin."

Collins, Frances, English author, died in Camberley, Surrey, March 17, 1886. She was the widow of Mortimer Collins, aided him in his literary work, wrote two novels in conjunction with him, and after his death published an account of his life in two volumes, entitled "Mortimer Collins; his Letters and Friendships" (1877). The same year she produced the "Village Comedy," and edited two editions of her husband's Aristophanic comedy, "The British Birds." In 1878 she wrote a novel, "You Play me False," and in 1879 edited a selection of papers of her husband under the title "Pen-Sketches by a Vanished Hand." A further selection of his writings, entitled "Thoughts in My Garden," was issued in 1880. In connection with her cousin, Mr. Cotton, she wrote a book for children, "Madge and her Chicks," and in 1880, they also jointly produced "The Woodleighs of Amscote" (1881). Her last novel, "A Broken Lily," appeared in 1882. She was a frequent contributor to newspapers and magazines.

Colomb, Lieutenant-General von, a German cavalry-officer, nephew of Marshal Blücher, died at Cassel, Feb. 14, 1886. He distinguished himself in the chief battles of 1866 and 1870. In 1876 he published reminiscences of the French war, and also an edition of the letters written by Blücher between 1813 and 1815.

Cook, Paul, President of the French Methodist Conference, born in 1827; died in Paris, May 2, 1886. He was one of the founders of Methodism in France, and was considered the author of French Sunday-schools. He took a prominent part in all evangelistic agencies.

Cooper, William White, an English oculist, died in London in June, 1886. He was a member of the Royal College of Surgeons in 1838, and a Fellow of that body in 1845. He was surgeon oculist in ordinary to the Queen, and had attended Her Majesty for upward of thirty years. He was also ophthalmic surgeon and lecturer at St. Mary's Hospital, senior surgeon of the North London Eye Infirmary, consulting surgeon of the Western Ophthalmic Hospital and in the school for teaching the blind, a Fellow of the Royal Microscopical Society, and a member of the Pathological Society. He was the author, among other works, of "Wounds and Injuries of the Eye," "Near

Sight, Aged Sight, and Impaired Vision," and of contributions to various medical journals. He was also editor of Prof. Owen's Hunterian lectures on comparative anatomy.

Cornaro, Lieutenant Field-Marshal Baron Louis, an Austro-Hungarian soldier, born in Olmütz in 1830; died in Zara, April 6, 1886. He was descended from the ancient Carnos family of Venice, who gave three Doges to the republic. In 1878 he was chief of the staff to the army that invaded Bosnia, and in 1881 was made chief of the general staff of the imperial army, and promoted to the rank of lieutenant field-marshal. In December, 1885, he was appointed Governor of Dalmatia.

Crampton, Sir John Fennes Twissleton, an English diplomatist, born in Dublin in 1805; died, Dec. 5, 1886. He was the son of an Irish surgeon, and was educated at Winchester, Eton, and Trinity College, Dublin. He entered the diplomatic service in 1826, was attached to several legations, and was appointed in 1854 envoy extraordinary and minister plenipotentiary to the United States. In May, 1856, President Pierce refused to hold further official intercourse with him on account of charges brought against him that he had attempted to enlist recruits in the States for the British army, and he returned immediately to England, but continued to hold the official position till 1857. He served as minister plenipotentiary at St. Petersburg in 1858, and Madrid in 1860, and retired to private life in 1869.

Crommelin, William Arden, an English soldier, born in 1823; died in Brighton, England, Oct. 30, 1886. He entered the army in 1841, taking part in the Sutlej campaign, for which he bore a medal. He served also in the Punjab in 1848-'49, and as chief engineer with Havelock's force on both passages of the Ganges and in the relief of Lucknow. He bridged the Ganges with slender means and in the face of a superior enemy, and directed the mining operations at Lucknow, for which he was made a Companion of the Bath, and rewarded with brevet rank of major, and with the Lucknow medal and clasp. In 1868 he was promoted to a major-generalship, and in 1879 to a lieutenant-generalcy.

Custance, William, a British soldier, born in 1811; died near Salisbury, Feb. 17, 1886. He entered the service in 1831, became captain in 1838, major in 1851, and served with distinction in the Crimean War from August, 1855, taking part in the battle of Tchernaya and the siege of Sebastopol, for which services he received the Turkish medal and the clasp, the fifth class of the Order of the Medjidieh. At the beginning of the Indian mutiny he was promoted to a lieutenant-generalcy and commanded the carabiners. He commanded the whole of the irregular forces at the storming of Delhi, commanded the carabiners and Hodson's horse, and captured the fortress of Kanoun. He also surprised the infantry of Furknugger, capturing the Nawab, and par-

ticipated in the subsequent operations. For his services he received many honors, with medal and brevet rank of colonel, and was nominated to the Order of the Bath. He became major-general in 1868, lieutenant-general in 1877, and a general in 1880.

Czajkowski, Michael, a Polish novelist, born in the Ukraine in 1808; died at Chernigoff, June 19, 1886. He was a refugee at Paris in 1831, took a prominent part in the Polish agitation, subsequently went to Constantinople, became a convert to Islamism, obtained a commission in the Turkish army, and during the Crimean War, fought against the Russians. He left the Turkish service, in which he was known as Sadyk Pasha, because he was disappointed in a scheme for obtaining Turkish co-operation for the restoration of the kingdom of Poland. In 1873 he abjured the Mussulman religion and made submission to the Czar. Besides his many novels, he wrote some interesting books of travel, among which was "Life among the Balkan Slavs."

Daubigny, Karl, a French artist, born in Paris in June, 1846; died in Anvers-sur-Oise, near Paris, in May, 1886. He was a son of the artist of the same name, and a pupil of his father when the latter was one of the foremost of European landscape-painters. From 1863 he was known for his admirable transcriptions of scenery in Normandy, Picardy, Brittany, and the Forest of Fontainebleau. His principal works are "Le Plate aux de Belle-Croix," "Les Vanneuses à Kéirty," "Finistère," "La Ferme Saint-Siméon à Honfleur," and "La Route de Paris à Fontainebleau." His latest and best work, exhibited in the Paris *Salon* in 1886, is entitled "Lever de Lune au Soleil Couchant."

David, Ernest, a Franco-Jewish author, born in Nancy in 1824; died in July, 1886. He engaged in early life in commerce, but afterward turned his attention to literature, becoming a contributor to the "Univers Israélite," where his articles attracted much attention. His studies in Judeo-Spanish history, and his biography of Sara Copia Sullam, an Italian Jewish poetess of the seventeenth century, appeared in that journal. He was an excellent English scholar, and in profound sympathy with the aspirations of his co-religionists, and found a congenial occupation in the translation into French of George Eliot's "Daniel Deronda," for the "Indépendance Belge" which was afterward republished by his brother-in-law, Calmann Levy. He also assisted in the French translation of Graetz's "History of the Jews," several volumes of which have appeared. He will be best remembered by his studies of musical history. Besides monographs on Sebastian Bach and Handel, he wrote "La Poésie et la Musique," "Dans la Cambrie," and "Histoire de la Notation Musicale depuis ses Origines." The latter was crowned by the Institut.

Decazes, Louis Charles Elie Amarien, Duc, a French statesman, born in Paris, May 9, 1819; died

in the Department of the Gironde, Sept. 17, 1886. His father was the famous minister of the Restoration. Entering the diplomatic service when quite young, he was appointed minister plenipotentiary to Spain and Portugal. After the revolution in 1848, which sent him back to private life, he used all his efforts against the republic and joined the Orléanist Liberals. He was equally hostile to Louis Napoleon, and labored with intensity and vigor against the second empire. After the fall of the empire, M. Thiers offered him a seat in the Cabinet, but he declined. He was one of the most active members of the coalition that overthrew Thiers. He was appointed minister to England under MacMahon, and on Sept. 26, 1873, he became Foreign Minister, succeeding M. de Broglie. He held that portfolio four years, in five successive cabinets, handling the affairs of his department with marked skill. In 1874 a controversy arose with Germany on account of the warlike language used by French bishops in their pastoral letters, but the French Government declined to prosecute the bishops. Germany was appeased by the separation of Metz from the diocese of Nancy, and the withdrawal of the frigate "Orenoque" which the French Government had placed at the disposal of the Pope. Spain, supported by Germany, accused the French authorities of affording the Carlists undue facilities, but the charges were refuted. After this difficulty had been overcome, Gen. von Moltke and the German press in 1875 raised a cry of alarm at the rapid reorganization of the French army and the purchases of horses, and clamored for another war, which was averted through the tact of the Due Decazes, who induced the courts of London and St. Petersburg to intervene. He resigned his office Oct. 20, 1877. He was interested in iron-mines from which he derived a large income.

Desjardins, Ernest, a French palæographer, born in Doisy-sur-Oise in 1823; died in Paris, Oct. 24, 1886. He was educated in Dijon, went to Paris in 1856 as Professor of Latin Epigraphy, and was intrusted with archæological missions in Italy, Egypt, and Hungary. His great work on Peutinger's tables is unfinished, and his geography of Roman Gaul is in course of publication. Probably few men have ever attained such a mastery of ancient geography as he.

Duncker, Maximilian Wolfgang, a German historian, born in Berlin, Oct. 5, 1811; died in Anspach, July 5, 1886. He studied at Berlin and Bonn, leaving the latter university in 1834. His most important works on ancient and modern history are "The Origin of Germany" (Berlin, 1840); "The Crisis of the Reformation" (Leipsic, 1846); and "History of Antiquity" (Berlin, 1852-'53). He was elected to the Prussian Chamber in 1850, and voted with the Conservative party, distinguishing himself in the opposition to Manteuffel. In 1859 he became Professor of History at Tübingen.

Du Saulle, Henri Legrand, a French alienist, born in Dijon, in 1830; died in Paris, May 6, 1886. He studied medicine in Dijon, afterward at Rouen and Charenton, and became physician, first at Bicêtre, and afterward at La Salpêtrière. Among his numerous treatises was "Le Délice des Persécutés," suggested by the events of the Commune.

Ebersberg, Ottokar Franz, an Austrian playwright, born in 1833; died in Vienna, Jan. 16, 1886. He wrote under the pen-name of "Berg," and was the author of a large number of melodies and farces, which have amused the public of every German town for the past twenty-five years. Many of his plays were translated into the Magyar and Slav languages, and were performed with success in all parts of Europe. He was the founder of the Viennese comic paper "Kikeriki," of which he was editor-in-chief until 1884, when he became deranged. He gained a large fortune entirely by his pen, but lived the last two years in a private asylum, where he died.

Edmonds, Richard, an English antiquary, born in Penzance, England; died in Plymouth in April, 1886. He studied the extraordinary agitations of the sea and earthquake-shocks, and published the results of his investigations in the "Edinburgh New Philosophical Journal," the British Association reports, and the transactions of the Royal Society of Cornwall. In 1862 Mr. Edmonds published a collection of his papers under the title of "The Land's End District; its Antiquities, Natural History, Natural Phenomena, and Scenery," and to these papers he appended a memoir of Richard Trevithick, the Cornish engineer. Mr. Edmonds was also the author of a pamphlet on "The Phœnician Tin-Trade of Cornwall," as well as a larger work on "True Biblical Chronology."

Edmondstone, John, an English soldier, died at Belvidere Weston, Herefordshire, England, July 3, 1886. He entered the army in 1850, and served with the Thirty-seventh Regiment during the Indian mutiny of 1857-'59. He defended the iron bridge over the river Gomtee with fifty men to cover the retreat from Chinhut on the 30th of June, 1857. From that date he was engaged in the defeat of the Gwalior rebels of Lucknow until its final release in November. He attained the rank of colonel in 1869, and was promoted to major-general in 1882.

Edward, Thomas, an English naturalist, born in Gosport, Dec. 25, 1814; died April 27, 1886. He was a factory-hand. He spent fifteen years on a collection of the fauna of Scotland, which he was obliged to sell, after which he made a second collection. After the publication of his biography by Samuel Smiles, Edward was awarded a pension of £50 by the Queen.

Ealiedjian, Abbé, spiritual chief of the Armenian Church, died in Constantinople, March 10, 1886. He, with his community, refused to join the bulk of the anti-Hassounists. In 1880 they made their peace with Rome, and

submitted themselves to the authority of the Patriarch Azarian. A month before his death, the abbé conversed with the Papal delegate, Monsignor Rottelli, and ended what at one time, seemed to be a serious difficulty.

Fischer, Dr. G. A., a German explorer, died in Berlin, Nov. 14, 1886, from tropical fever. He was awaiting the arrival of his notes and natural specimens from Africa, the results of his exploration, when he fell ill and died at a comparatively early age.

Flegel, Robert E., a German explorer, died in Africa, near the mouth of the Niger, in September, 1886. He was an employé in a German factory on the Slave Coast, and was habituated to the climate and experienced in African ways before he made his first long journey into the Benue region and Adamawaland, from which he returned to Germany near the close of 1884, after having been several years in the interior, penetrating to the neighborhood of Lake Chad. On the information brought by him, the German Colonial Association, while the African Company were appealing to the Chancellor for imperial subventions to carry out their projects, endeavored through his instrumentality to establish German trading-stations on the Benue. The German Parliament voted 150,000 marks, which enabled Flegel to undertake his second expedition, which had for its object the exploration of the sources of the Benue, the northern affluents of the Congo, and the Cameroons river. He set out on the expedition in the summer of 1885. The British commercial companies that had previously monopolized the trade of the Niger, placed such obstacles in the way of Flegel that he was unable to accomplish the practical object of the expedition. He died of fever while returning from his journey. The convention with England respecting the boundaries of the Cameroons colony gains for Germany the commercial access to the upper Niger region for which Flegel strove.

Frère, Édouard, a French painter, born in January, 1819; died in Ecouen, in May, 1886. In 1836 he became a pupil of Paul Delaroche, under whom he made rapid progress, but from whose influence he subsequently emancipated himself. M. Frère first exhibited at the *Salon* in 1843. His pictures soon became popular, more so in England than in France. Among his favorite works of this class were "The Reading-Lesson," "The Little Purveyor," "The Cook," "Interior of a Court in Autumn," and "The Studio." In 1859 he produced his popular pictures of "Going to School," and "The Flute-Lesson." In the Great Exhibition of 1867, a considerable number of his works were exhibited. In 1869 he produced his companion-pictures of "Boys and Girls leaving School"; in 1870, "The Little Bird"; and in 1872, "A Presentation" and "An Interior." He then rested for some years, but in 1877 painted his "Interior at Ecouen," and the "Departure from School." In the present *Salon* are two

admirable works from his hand, one "The Elder Brother," representing a boy in a very humble cottage, rocking a cradle, containing a chubby, rosy-cheeked baby; and the other an interior, with a laborer's wife engaged in sewing, while a child stands by her, and a baby is lying in a cradle. Many of this artist's productions have become widely known through the lithographer's art. M. Édouard Frère obtained two third-class medals in 1850 and 1855; one of the second class in 1852; and the decoration after the Universal Exhibition of 1855. No artist has done more than he to illustrate the joys and the hardships of the poor.

Fergusson, James, an English architect and historian, born in England in 1808; died Jan. 9, 1886. He was educated at Hounslow, went to India, and began a mercantile life, and then undertook a series of researches among the ruins in India. In 1849 he published his "Inquiry into the True Principles of Beauty in Art, more especially with reference to Architecture," in which he expounded his theory of the mode of lighting the Greek temples. He became advising officer in architectural matters to her Majesty's First Commissioner of Works and Public Buildings. A picture-gallery that he built in Kew Gardens was lighted on the principle which he maintained was used by the Greeks in their best temples, and it is the best-lighted picture-gallery in England.

Goddard, Bouvier, an English painter, born in Salisbury, Dec. 25, 1832; died in West Kensington, in March, 1886. He studied at Ivy Church School. Going to London in 1849, he spent two years in making studies from animal life in the Zoological Gardens, when he returned to Wiltshire and executed many important commissions for country gentlemen. Returning to London in 1857, he became a constant exhibitor at the Royal Academy. Among his most valuable works are: "The Casuals" (1868); "Pony Fair, New Forest" (1872); "Lord Welverton's Bloodhounds" (1875); "The Struggle for Existence" (1879); "Rescued" (1881); "Love and War" (1883).

Goodwin, George, an English architect, born at Brompton, Middlesex, Jan. 28, 1815; died in London, Oct. 14, 1886. He was the son of an architect, and built the churches of St. Mary's, West Brompton, St. Luke and St. Jude, South Kensington, and was the restorer of the church of St. Mary Radcliff, Bristol. He was the author of "The Churches of London" (London, 1838); "History in Ruins" (1853); "London Shadows" (1854); "Memorials of Workers," and other works.

Goold, James Alpinus, Roman Catholic Archbishop of Melbourne, born in Cork, Ireland, in 1812; died in July, 1886. He studied for the priesthood and went to New South Wales, where he was consecrated Bishop of Melbourne in 1848. The discovery of gold in Victoria, and the rapid introduction of a numerous population, caused the district to develop rapidly. Bishop Goold was zealous and persevering, and

churches, convents, and educational establishments sprang up in all parts of his diocese. He was subsequently engaged in a sharp controversy with a portion of the Victoria people, on the subject of public education. The Parliament of Victoria having declared that the support of the public treasury should be only given to unsectarian schools, Bishop Goold denounced the decision as tyrannical and impious, and the strife continued for several years. In 1876 the Pope constituted him the first Archbishop of the Province of Melbourne.

Gordon, David, a German journalist, born in 1836; died in Lyck, Eastern Prussia, in 1886. He was the editor of "Hamagid," a journal that circulated principally among the Russian Jews. His letters, under the head of "A Narrative from the Borders," published in the "Jewish Chronicle" in 1881, supplied the most trustworthy account of the Russian persecutions of that year. Herr Gordon had been editor of the "Lycker Zeitung," and was frequently employed by the Prussian Government as a translator of public documents.

Gougeard, M., a French journalist, born in 1826; died March 8, 1886. He entered the navy in 1844, and served in the Crimean and Chinese wars. He became a writer for the "République Française," and was Minister of Marine in Gambetta's short-lived Cabinet.

Guden, Dr. von, German physician, born in Bavaria; drowned in Starnberg Lake, in the attempt to save the life of King Ludwig, June 13, 1886. Dr. von Guden was an original investigator in the department of cerebral physiology and pathology, but had not made public many of his discoveries and observations. He had enriched science with one discovery of importance, that of the seat in the brain of the nuclei of the nerves of sight, hearing, smell, touch, and the facial muscles. These he found by removing from young animals the nerves to be investigated, and observing, after they had grown up, what portions of the brain remained undeveloped. This discovery is of value in surgical practice, enabling the surgeon in cranial operations to rescue organs of sense, such as the eye, which would be lost through unenlightened treatment.

Guibert, Joseph Hippolyte, Cardinal Archbishop of Paris, born in Aix, in the department of Bouches-du-Rhône, Dec. 13, 1802; died in Paris on July 8, 1886. After brilliant theological studies in the congregation of the Immaculate Conception at Marseilles, and in Rome he was made vicar-general and superior of the seminary at Ajaccio. On July 30, 1842, he was nominated by the King of France Bishop of Viviers, and on Feb. 4, 1857, was made Archbishop of Tours. On July 19, 1871, by the appointment of President Thiers, he succeeded Darboy in the archiepiscopal see of Paris. He was made a cardinal on Dec. 22, 1873. By a decree of May 7, 1875, Monseigneur Richard, previously Bishop of Belley, was appointed his coadjutor, with the right of suc-

cession. Monseigneur Guibert was a man of strong feeling on political subjects, and openly espoused the cause of the princes of the house of Orleans when suffering from his last illness. He built the church of the Sacred Heart on Montmartre, and designated it as a votive offering for the sins of his country. He took a prominent part in questions relating to university education. His chief work consisted of his pastoral letters, which have been collected and published, and the letters that he addressed from time to time to the ministers on questions of the day, in which he dissected their views, and portrayed their policy from his own point of view. Only two months before his death he sent a remarkable letter to President Grévy, in which he recounted the wrongs that had been done to the Church by the Republican Government; denied that the clergy had any bias of hostility toward the republican system, since their religion teaches them to respect existing institutions, and defended their partisanship for the monarchy on the ground that they were naturally drawn toward those who protect, and averted from those who despoil them. The Government, he said, had for six years persecuted the clergy, weakened Christian institutions, and prepared for the abolition of religion itself.

Hatton, John Liptrot, an English composer, born in Liverpool in 1815; died in London, Sept. 20, 1886. He was a self-educated musician, was the composer of several successful operas, and wrote original music to some of Shakespeare's tragedies.

Heine, Baron Gustave, a German journalist, born in 1808; died in Vienna, Nov. 15, 1866. He was the younger brother of Heinrich Heine, the celebrated German poet. The latter died in 1856, in Paris, in poverty. Gustave Heine, who had none of his brother's literary talent, left a fortune of millions, which he had acquired by skillful business management of the "Fremdenblatt," which he established in 1845. He had remarkable tact in choosing writers for his paper. The title of baron was conferred upon him some years ago as a reward for services rendered to the Government. According to an often-quoted anecdote, he once said, talking of his paper, "My brother Heinrich was a clever fellow, but he was never equal to writing for the 'Fremdenblatt.'"

Hobart, Augustus Charles, known as Hobart Pasha, an English sailor, born in England, April 1, 1822; died at Milan, June 19, 1886. He was the third son of the Duke of Buckinghamshire, and at the age of thirteen entered the Royal Navy. While still a midshipman he saw considerable active service in the suppression of the slave-trade off the coast of Brazil. On his return to England, in 1845, he was appointed to the Queen's yacht, and in 1855 was raised to the rank of a commander. He commanded the ship "Driver" in the Baltic Sea during the Crimean War, and was mentioned in dispatches for his gallantry in the capture of

Bomarsund and Abo. In 1862 he retired, with the rank of captain, from active service in the English Navy. He espoused the cause of the Confederates in the American civil war, and was placed in command of a swift cruiser called the "Don," engaged in running the blockade off the coast of North Carolina. After the close of the war, he published an account of his adventures under the pen-name of "Captain Roberts." He entered the service of the Sultan of Turkey in 1867, was at once placed in high command, and was sent with a considerable fleet to blockade the coasts of Crete. In the Cretan difficulty, and in the delicate negotiations relating to the Christians in Syria, he played a discreet and important part, for which he was subsequently raised to the rank of a full admiral, with the title of pasha, and received French and Austrian decorations. During his active service in Crete his name had been removed from the English Navy list, but after several years' service as inspector-general of the Turkish fleet, he made a formal application to be reinstated, and in 1874 his appeal was granted. On the outbreak of the Turco-Russian War, in 1877, he was placed in command of the Turkish fleet in the Black Sea. An outcry was at once raised against the employment of an English officer in the Turkish service, and he formally withdrew from the English service, preferring to remain a Turkish officer. At the outbreak of the war he brought some Turkish gunboats safely down the Danube, past the Russian batteries. After the Berlin Congress he was chiefly employed in preparing for what he believed was the inevitable renewal of the struggle with Russia, when he expected to find England and Turkey arrayed on the same side; and during the critical phase of the Afghan question, in 1885, he went to London on a mission, in conjunction with Hassan Fehmi, and with this mission his public career ended. During this visit to England he was finally reinstated among the officers of the English Navy. In 1881 he was appointed by the Sultan mushir, or marshal, being the first Christian to hold that office.

Holkar, Maharajah Tukaji Rao, an Indian prince, born in 1833; died at Indore, July 17, 1886. He was placed upon his throne at the age of eleven by the direct intervention of the English Government. During the Indian mutiny, which broke out a few years after he had been intrusted with his sovereign rights, he remained loyal to the English. He devoted himself to the task of raising the prosperity of his state and increasing the welfare of his people, and by his efforts his revenue more than doubled. He is succeeded by his son, Shivaji Rao.

Humphry, William Gilson, an English clergyman, born in 1815; died in London, Jan. 18, 1886. He studied at Trinity College, Cambridge, and in 1838 was elected a Fellow of Trinity. In 1869 he was a member of the

Ritual Commission, a member of the company for the revision of the English version of the New Testament in 1871, and a member of many important church organizations. He published various theological works, but principally was the author of a revised version of St. John's Gospel and the Epistle to the Romans, and edited important religious works.

Imbriani, Vittorio, an Italian scholar and linguist, born in 1846; died Jan. 2, 1886. He fought under Garibaldi for the freedom of Italy. He devoted himself to philological studies, and became distinguished as a classical scholar and a writer in various fields of literature. His "Novellaja Fiorentina" and "Novellaja Milanese," the latter in the Lombard dialect, containing traditional tales taken from the lips of the people, are the first collections that were made of Italian folk-lore.

Ingleby, Clement Mansfield, an English Shakespearean commentator, born at Edgbaston, England, in 1823; died in October, 1886. He was graduated with honors at Trinity College, Cambridge, in 1847, and became a writer on Shakespearean subjects. Among his works are "The Shakespearean Fabrications" (1859); "A Complete View of the Shakespeare Controversy" (1861); "Shakespeare's Centurie of Praye" (1877). He also published "Outlines of Theoretical Logic" (1856), and "Introduction to Metaphysics" (1869).

Isabey, Eugène, a French artist, born in 1804; died in Langres, April 26, 1886. He was a painter of sea-pieces and landscapes. Two of his pictures depicted Queen Victoria's visit to Louis Philippe. He continued to exhibit until 1878.

Jackson, Thomas, an English clergyman, born in 1812; died in Stoke Newington, March 18, 1886. He was graduated at St. Mary's Hall, Oxford, entered the ministry, and after holding a curacy at Brompton was appointed to St. Peter's, Stepney, and in 1844 became Principal of the National Society's Training College at Battersea. In 1850 he visited New Zealand as Bishop designate of Lyttleton. In 1852, Mr. Jackson was an active member of the Committee of the Royal Society for Prevention of Cruelty to Animals, and was one of the deputation received at the Tuilleries by Napoleon III with a view to awakening French sympathy with the society's object. He issued a pamphlet entitled "Uniomachia," published at Oxford in 1833, the first of a long series of his literary works, among which are "A Mourning Mother Comforted," and "Curiosities of the Pulpit." Mr. Jackson was for some time editor of the "Journal of Education."

Jamin, Jules Celestin, a French physicist, born in Termes, Ardennes, France, May 31, 1818; died in Paris, Feb. 12, 1886. He was educated in the College of Rheims, where at the end of his first year he gained nine prizes, with the prize of honor won in general competition between the colleges of Paris and those of the departments, and was graduated in 1841 as

first-prize-man in physical science. At once he was called to the college in Caen, and two years later, through the influence of Baron Thenard, to the chair of Physics in the Collège Bourbon, Paris. In 1844 he was elected to a similar chair in the Collège Louis-le-Grand, where he continued his researches begun in Caen, and in 1847 received his doctorate of physical science for a thesis, now a classic, on the reflection of light from the surface of metals. From 1852 till 1881 he was Professor of Physics at the École Polytechnique, and from 1863 till his death, professor at the Sorbonne, where, on the death of H. Milne-Edwards, he became Dean of the Scientific Faculty. His researches embrace nearly all departments of physics, and by their historical order and succession indicate the progress of that branch of science from the middle of the century till the present. As an electrician he will be remembered through the magnet of peculiar construction that bears his name, and his electric candle, which burns point downward and is self-igniting. Besides various investigations in optics, magnetism, and electricity, he was the first to complete a rational study of magneto-electric currents. His researches in the compressibility of liquids, on capillarity, hygrometry, specific heat, the critical point of gases, and many others, demonstrate the originality and fertility of his genius. He likewise was a working botanist and geologist, and had a great fondness for metaphysics, literature, music, and the fine arts. Many of his paintings have been preserved, including an admirable portrait of Le Febre. He was a member of various scientific societies, and on the death of Dumas, in 1884, was chosen perpetual secretary of the Académie des Sciences, of which he had been elected a member in 1868. His scientific papers were contributed to periodicals, and many of his literary articles appeared in the "Revue des Deux Mondes." He was the author of a "Cours de Physique de l'École Polytechnique" (3 vols., Paris, 1858-'61), and "Appendix" (1875).

Jewitt, Llewelyn, an English archæologist, born in Kimberworth, Yorkshire, in 1814; died in Duffield, Derbyshire, in June, 1886. At an early age he settled in London, and was employed in illustrating books. He was a large contributor, both by pen and pencil, to the "Illustrated London News" during his early years, and published a "Hand-Book of British Coins." He afterward had the superintendence of "Punch," was subsequently appointed librarian of Plymouth Public Library, and identified himself with various literary and scientific institutions in the west of England. In 1854 he resigned the librarianship, removed to Derby, and established the Derby "Telegraph," which he conducted for five years. In 1860 he projected the "Reliquary," a quarterly archæological review, which he successfully carried on until his death. His labors in the field of archæology are well known, and

his researches were extensive. He was the author of "The Ballads and Songs of Derbyshire," "Grave-Mounds," and "Half-Hours among some English Antiquities."

Kennedy, James, an English engineer, born Jan. 13, 1797; died in September, 1886. In early life he entered the service of John Stevenson, at Monkland Steel-Works, to construct and erect water-wheels and pumping-engines, designing his own patterns. He prepared the plans for the first three locomotives on the Stockton and Darlington Railway in 1825, and afterward built the locomotive "Liverpool," the first engine made in England with horizontal cylinders applied directly to the crank-shaft or axle. In 1832-'33 the firm of which he was a member sent locomotives and other railway plants to the United States. In 1846 he was elected President of the Institution of Mechanical Engineers.

Komperf, Leopold, an Austrian novelist, born in Münchengrätz, Bohemia, in 1822; died at Vienna, Nov. 28, 1886. His works dealt exclusively with scenes from modern Jewish life. His principal works are: "Tales from the Ghetto" (1848); "The Bohemian Jewess" (1851); "At the Plow" (1855).

Lachat, Eugène, a Swiss prelate, born in Montavan, in the canton of Berne, Oct. 14, 1819; died in Ticino, Nov. 1, 1886. He was an orphan child, and was befriended by the priest of Grandfontaine, who sent him to Besançon for his education, and in 1836 to the seminary at Albano, where he was ordained a priest in 1846. He labored two years in Italy, and was then sent to Colmar, where he was a priest for six years. In 1850 his patron called him to Grandfontaine as vicar, and five years later he was given the cure at Delsberg. He was acceptable to the people of Berne as bishop of the vacant see of Sobothurn and Basel, and was elected on Feb. 26, 1863; but after the promulgation of the dogma of infallibility by the Vatican Council he came into conflict with the political authorities. When he refused to recall the excommunication and removal of priests who opposed the doctrine of infallibility and place the theological seminary under the control of the temporal authorities, he was deposed. The diocesan authorities in Lucerne and Zug were faithful to the Church, and in the former place a residence was fitted up from which Lachat governed the clergy in Lucerne and Zug, and directed the Ultramontane movement in the dissident cantons for about eleven years. The Roman Catholic clergy, in spite of prohibitions, kept up their relations with the deposed bishop, and sent the children to him for confirmation. In 1884 the cantonal and Federal authorities made overtures for peace with the Church. The Curia met them half-way, and was even willing to recognize as valid the removal of Lachat, in order to have a regular bishop again in the diocese of Basel. Lachat was advanced to the dignity of Archbishop of Damietta in *partibus infidelium*, and appointed

apostolic administrator in Ticino. This canton was separated from the See of Como in 1859. The Ultramontanes have long desired to have it erected into a bishopric, while the Federal Council proposed to incorporate it in some existing Swiss see. The matter was compromised by the appointment of Lachat, but his death terminates the arrangement. Lachat in his new field created new commotion, though here the bulk of the laity were on his side, and the cantonal authorities were subservient to his wishes. He secured the enactment by the Grand Council of the canton and the ratification by the popular vote of a new ecclesiastical law which gave him unlimited control over the churches. The execution of this law was resisted by a part of the people, but in the midst of the conflict its author died.

Landsborough, William, a British explorer, born in Scotland; died in Brisbane, Australia, in May, 1886. In 1866 he discovered the head of Thompson river, Australia, and in 1867 traced the Gregory and Herbert rivers to their sources. He then traversed the continent from the Gulf of Carpentaria to Melbourne in search of Burke and Wills, the explorers.

Leblanc, Louis, a French chemist, born in Florence, Italy, Nov. 15, 1813; died in Paris, March 8, 1886. He entered the Collège Bourbon in 1830, and in 1837 was graduated at the Ecole des Mines as a civil engineer. After some time spent in foreign travel, he entered the laboratory of Jean B. Dumas, for the purpose of studying chemistry. In 1842 he was made assistant at the Ecole Centrale des Arts et Manufactures, chief of the analytical laboratory in 1854, was in charge of the course on the analysis of gas in 1865, and Professor of Analytical Chemistry in 1873. Meanwhile he was also assistant in chemistry at the Ecole Polytechnique, and had charge of the entire course during the absence of Edouard Frémyn in 1849, 1862, and 1871. His first researches were on the composition of air, and in 1842 his memoir on "Confined Air" was read before the Academy of Sciences. Subsequently his investigations in this direction were most valuable. The air of the prisons, of the theatres, and of the barracks in Paris, was examined, and his results published. He held official appointments for the purpose of devising improved methods of ventilation. The amount of carbon dioxide necessary to vitiate the atmosphere was carefully studied, and resulted in his statement that an atmosphere of confined air was fatal to man when it contained a quantity of carbon dioxide equivalent to that exhaled by the lungs. In 1863 he received the appointment of official gas-inspector of the city of Paris, which office he held for twenty years, and during his administration made reports on improved methods of illumination, and recently in matters pertaining to electric lighting. Of his other investigations, the most important were his examination of "the products derived from acetic ether by the

action of chlorine," and his work in connection with the discovery of the products of dehydration of ammoniacal salts. He was a juror in the International Exhibitions held in Paris in 1855, 1867, and 1878. For many years he was a member of the Chemical Society of Paris, holding various offices, including that of vice-president in 1862 and in 1868. He was also a member of other scientific societies, both in France and Italy. Besides his many articles in Wurtz's "Dictionnaire de Chemie," his bibliography includes upward of fifty titles of original papers.

Leblond, Désiré Médéric, a French advocate and statesman, born in Paris, May 9, 1812; died there, July 22, 1886. He studied law, and was admitted to the bar in 1833. He was the son of a counselor of the royal court, and obtained a post at the palace. At the same time he acted as counsel for several workingmen's societies and republican journals. In 1848 he became Attorney-General for Paris, but resigned when elected representative by the Department of the Marne, and sustained Cavaignac. He brought forward a proposition to elect the President by the vote of the National Assembly. He opposed Louis Napoleon, and under the empire resumed practice at the bar of Paris. In 1870 he was appointed Attorney-General for Paris, but resigned upon being elected to the National Assembly in 1871, and was leader of the Republicans. He represented the first circumscription of Rheims in the Chamber of Deputies in 1876, and in 1879 was elected Senator of the Marne.

Léop-Bri, Judah Jechiel, a British journalist, died in London, in November, 1886. He was well known as the editor of the "Shulamith," a weekly newspaper published in London, and distinguished himself a few years since by collecting, with the assistance of Baron Edmond de Rothschild, a large colony of emigrants, whom he conducted to the Holy Land and settled as an agricultural colony. He was the author of several Hebrew books.

Loewe, Ludwig, a German statesman, born in 1838; died in Bremen, Sept. 12, 1886. He was one of the foremost members of the Landtag and the Reichstag, and one of the ablest and most zealous defenders of his countrymen, the Hebrews. He sat in several of the German Parliaments, and was recognized as one of the most notable advocates of liberal ideas.

Lynch, Patricio, a Chilian naval officer, born in Santiago, Chili, in 1825; died at sea in May, 1886. He was the son of a wealthy Irish merchant, who married a Chilian lady, was educated at the Naval School in Santiago, and served in the expedition to Peru in 1837. The Government sent him to England in 1839, where he entered the navy as a lieutenant, and served with distinction in the Chinese War of 1840-'42. He returned to Chili in 1847, re-entered the navy as a lieutenant, rose to be commander of a frigate, but left the service in 1854. In the war with Spain in 1865 he again joined the

service, and held the successive appointments of Naval Governor of Valparaiso, organizer of the National Guards with the rank of colonel, and captain of a man-of-war. In the war with Peru he was the first Chilian Governor of Iquique, and during the operations was the most successful of the Chilian commanders, conducting a naval and military expedition into the northern provinces of Peru, and taking part in the final campaign which resulted in the reduction of Lima. He commanded a division that rendered effective service at the battle of Miraflores, and at Chorillos bore the brunt of the combat. During the occupation he was appointed commandant at Lima, and sternly repressed the plundering that had been carried on under previous commanders. He suppressed the Calderon Government, arrested Don Garcia Calderon, and sent him a prisoner to Chili, thereby coming into collision with Mr. Hurlbut, the American minister. He planned the campaign in which Caceres was defeated at Huamachuco in July, 1883, invested Iglesias with the supreme power in October, 1883, withdrew the Chilian garrison to Chorillos, and conducted the evacuation of the country after the ratification of the peace.

Maas, Joseph, an English singer, born in 1847; died in London, Jan. 16, 1886. He was for five years a choir-boy at Rochester Cathedral, which he left when his voice, from a ringing treble, changed into a soft and mellow tenor. He went to Milan and studied for two years, returning to England in 1871, and appearing for the first time in public at a concert in St. James's Hall. After a few months of public life, he came to America, acting chiefly as first tenor in various English opera companies. On his return to England he was engaged by Carl Rosa, and appeared as a tenor in various operas. In the ballad operas of Balfe and Wallace his popularity was unequalled. He acted with remarkable spirit, and was an almost perfect interpreter of the music he essayed. Shortly before his death he appeared at Brussels and also at Paris, and in both places the rich tones of his voice produced an extremely favorable impression.

MacDongall, Bishop, Francis Thomas, Archdeacon of the Isle of Wight and Canon of Winchester, born in Sydenham in 1807; died in Winchester, England, Nov. 18, 1886. He was educated at King's College, London, and obtained the gold medal in 1837, afterward became a Fellow of the Royal College of Surgeons, and demonstrator of anatomy at King's College. After subsequent honors and a journey to Borneo with Sir James Brooke, he was consecrated Bishop of Labuan. Returning to England in 1868, he settled in Godmanchester, and afterward was transferred to Winchester, becoming Archdeacon of the Isle of Wight in 1874. He was the author of a translation of the "Book of Common Prayer into Malay" (1858), and a "Catechism of the Christian Religion in Malay and English" (1868).

Macpherson, Sir Herbert Taylor, a British soldier, born at Ardersier, Inverness-shire, Feb. 27, 1827; died in India in October, 1886. He entered the army in 1845. He first took part in actual warfare in the Persian War, at the end of which, in 1857, he attained his captaincy. The outbreak of the Indian mutiny followed, and he was present in all the battles fought with the Oude mutineers and the followers of Nana Sahib; he particularly distinguished himself in the siege of Lucknow. His next services were in the Hazara campaign in 1868, and in 1871 he took part in the Looshai expedition. He was appointed to the rank of major-general in the Afghan War in 1878, and was present at the capture of Ali Musjid, and the subsequent expeditions into the Lughman and Kama valleys. After the Cabul massacre in 1879, he received command of a brigade under Sir Frederick Roberts, and was present at the battle of Charasiab, which opened the road to Cabul. After the forces of Mahomed Jan and the Mushk-i-Alim surrounded the English army at Sherpur, he came to the support of Gen. Massey's broken detachment and put the Afghans to flight. In the final operations against the forces of Mahomed Jan, Sir Herbert Macpherson enjoyed the credit of the second victory of Charasiab. In the battle of Candahar he commanded the brigade which led the advance, and achieved the victory at one charge. His brilliant Afghan services obtained for him the command of the Indian contingent in Egypt. In the winter of 1885 he was appointed commander-in-chief of the Madras presidency. In October, 1886, he assumed the command of the field army in Upper Burmah, but on his arrival at Mandalay he contracted a climatic fever, and died on the voyage down the Irrawaddy while on the route to the Andaman Islands.

Madvig, Jean Nicolas, Danish philologist and politician, born at Svaneke, in the Island of Bornholm, Aug. 7, 1804; died in Copenhagen, Dec. 12, 1886. He was graduated at the University of Copenhagen, and in 1829 was appointed Professor of the Latin Language and Literature, and ultimately became the rector of the university. He published numerous works on philology. His work on "The Essence, Development, and Life of Language," appeared in 1842. Among his other works are "A Glance at the Constitutions of Antiquity," "The Foundations of Ancient Metre," and "Critical Notes on Greek and Latin Writers." In 1848 he was appointed Minister of Worship, and in 1852 he was a member of the Danish Chamber.

Malou, Jules, a Belgian statesman, born at Ypres, Oct. 19, 1810; died Aug. 3, 1886. He became a distinguished advocate of the Brussels bar, was appointed chief of division in the Ministry of Justice, and subsequently Governor of Antwerp, was elected to the lower house of the Belgian Parliament in 1841, and on July 30, 1845, was selected as Minister of Finance in the Liberal Cabinet organized by Sylvain Van de Weyer. On the dissolution of that

Cabinet in 1846, he retained his portfolio in the Conservative ministry. He became one of the leaders of the Conservative party during the struggle over the school question. In 1870 he was chosen Premier, holding that office until 1878. He was the author of several treatises on finance, the monetary question, and railroads, especially of a "History of Belgian Finance from 1831 to 1865" (Paris, 1867).

May, Sir Thomas Erskine, Lord Farnborough, an English historian and jurist, born in 1815; died in London, May 17, 1886. He was called to the bar in 1838, and in 1844 published his "Treatise on the Law, Privileges, Proceedings, and Usage of Parliament"; a concise and scientific digest of all that had been written on the subject. This work is the text-book of the law by which Parliament governs its proceedings. Colonial legislatures have been modeled on the lines laid down in it, and its translation into foreign languages has extended its influence to other countries. In 1861 he published his "Constitutional History of England since the Accession of George III," which takes up English history where Hallam left it. His latest work, "Democracy in Europe," was published in 1877. His connection with the House of Commons began in 1831, when he was appointed assistant librarian. In 1846 he became examiner of petitions for private bills, and in 1871 Clerk of the House of Commons.

Mayer, Joseph, an English antiquarian, born in Newcastle-under-Lyme, in 1803; died in Bebington, Cheshire, Jan. 18, 1886. He began life in Liverpool as a silversmith and jeweler, and devoted his leisure and his earnings to the gathering of antique coins and gems. He attained great skill as a numismatist, and sold one collection of Greek coins to the French Government in 1844 at a high price. He then devoted all his efforts to the gathering of specimens of Egyptian, Roman, and Etruscan art, of ivory carvings and Wedgwood-ware, all of which antiquities were placed in a house in Liverpool, and finally thrown open to public inspection. When the free library and museum was built by the late Sir William Brown, Mr. Mayer made a gift of his collection, which had cost him over £20,000 in money and years of diligent research, to the corporation of Liverpool. This collection now forms one of the most valuable and instructive sections of the great museum. In consideration of his munificent gift, Mr. Mayer's statue, by Fontana, was placed in St. George's Hall, Liverpool. He was a constant writer on antiquities, coins, and pottery. His name is also associated with the introduction of electroplating, he having assisted the inventor of that process, Thomas Spencer, to a successful introduction of his work. The first article ever successfully treated by this process was an electroplated spoon, and it is one of the pieces of the Mayer collection. Mr. Mayer also built in Liverpool a free library, to which he gave 10,000 volumes, and also laid out a park for the use of the people.

Messner, Joseph, an Austrian sculptor, born in Oberndorf, near Klagenfurt, Carinthia, in 1840; died there, Nov. 15, 1886. He was trained as an ornamental watchmaker, and showed such artistic talent that his master begged the sculptor Gasser to take him as a pupil. But Gasser refused, saying he was much surer of making a competence as a watchmaker than as a sculptor. He made his way to Munich, where his ability was recognized at once, and, without any preparatory training, he was taken into the Academy of Arts under Prof. Wittmann, and worked there for some years. In 1871 he went to Rome, and in 1880 removed to Vienna.

Meyer, Johann Georg, *genre* painter, born in 1813; died in Berlin, Germany, Dec. 6, 1886. This famous artist, better known as Meyer von Bremen, from his birthplace, studied at the academy at Düsseldorf, but settled in Berlin in 1852. He first devoted himself to Biblical subjects. Prominent among his works of this class are "Christ Weeping over Jerusalem," "Abraham and Sarah," "Hagar and Ishmael," and "The Death of Moses." Afterward he confined himself mainly to domestic scenes and figures, especially of children. On this account he came to be known as the Kinder-Meyer. Many of his pictures have been reproduced in etchings. His works have sold largely in the United States.

Mithellis, Friedrich, a German Old Catholic leader, born in Münster, Westphalia, July 27, 1815; died in Freiburg in 1886. He was educated at the Münster Theological Seminary, and ordained a Catholic priest in 1838. At the Assembly of Catholic Theologians at Munich, in 1861, he was accused of disobedience and revolt against Papal authority. For many years he was an opponent of the dogma of Papal infallibility, and was excommunicated in 1870 for refusing to accept that doctrine after its promulgation by the Vatican Council, and joined with Dr. Döllinger and other German Catholics in founding the Old Catholic Church. He sat in the Prussian Chamber of Deputies in 1866-'67 as an opponent of the policy of Chancellor Bismarck. Among his many works are "An Exposition of the First Two Chapters of Genesis" (1845); "A Criticism of the Philosophy of Günther" (1854); "Nature and Revelation" (1855); "The Ecclesiastical View of Natural Science" (1855); "The Philosophy of Plato and its Relations to Revealed Truth" (1860); "Church or Party" (1865); "A History of Philosophy from Thales to Our Time" (1867); "Fifty Theses on the Situation of Church Affairs at the Present Time" (1867); "Papal Infallibility in the Light of Catholic Truth" (1869); "The Temptation of Christ and the Temptation of the Church" (1870); "Kant, before and after 1870" (1871); "Häckelogeny" (1876), an attack upon the theories of Haeckel and Darwin; and "The Philosophy of Consciousness" (1877), opposing the views of Hartmann.

Miller, Emmanuel, a French palæographist, born in Paris in 1812; died in Nice, Jan. 9, 1886. He entered the National Library in 1834, and made Greek palæography his study. In 1840, in a collection of manuscripts from Mount Athos, he detected a lost fragment of the original "Philosophoumena," and edited it for an Oxford edition. Within a few years he had been engaged on a catalogue of the Greek manuscripts in the Escorial.

Minghetti, Marco, an Italian statesman, born in Bologna, Sept. 8, 1818; died, Dec. 10, 1886. His father died early, but he was carefully educated under his mother's supervision, and after studying mathematics, physics, and political science, he traveled extensively in France, England, and Germany. After his return he delivered lectures on political economy before the Agricultural Society of Bologna, in which he upheld the principles of free trade, and proposed a customs union for Italy. During the revolutionary epoch of 1848 he conducted a newspaper in which he opposed the extreme radicalism of Mazzini, and advocated the cause of the constitutional monarchy. On the accession of Pius IX he was called to Rome as a state counselor, and in the lay Cabinet of March 10, 1848, he took the portfolio of Public Works. After the change of Papal policy had been indicated in the Encyclica of April 29, 1848, he joined the partisans of King Charles Albert. He fought with distinction in the campaign of 1848. He formed a close friendship with Cavour, and supported that statesman without reserve. In 1856 he accompanied Cavour to the Congress of Paris, after which he was appointed Secretary of the Foreign Office, and then Minister of the Interior. From the death of Cavour until more radical elements gained the upper hand under the lead of Depretis, he was the guiding hand in Italian politics. At times he was Prime Minister, and at other times he held the portfolios of Finance, the Interior, or Public Works. He was one of the most celebrated political economists of the day, and under his direction the financial and economical laws of Italy were largely developed. He withdrew to the Conservative Opposition upon the accession of Depretis to power, but, when the latter veered toward the Right in his policy, Minghetti and his followers supported the ministry in nearly every question of national importance.

Moewe, Wilhelm, a German physician, born in 1814; died in Berlin in November, 1886. He was generally called Moewe Calbe, from the constituency he represented in the Frankfort Parliament of 1848. When the rump of that assembly removed to Stuttgart, he acted as president. After its dispersion, he was condemned in *contumaciam* to penal servitude for life. He made his escape to Switzerland. He settled in New York, and practised medicine in that city until the amnesty of 1861 enabled him to return in safety to Prussia. From

1873 till 1876 he was Vice-President of the Prussian Lower Chamber.

Morley, Samuel, an English merchant, born in London in 1809; died there, Sept. 5, 1886. He was educated at a private school, and became a partner of his father, Mr. John Morley. In December, 1868, he was elected to Parliament from the city of Bristol, and continued to represent that city up to his final retirement in 1885. In his first session in the House he voted for the disestablishment of the Irish Church, and was a strong opponent of all compulsory payments for the maintenance of religion. He supported the bill to legalize marriage with a deceased wife's sister, on the ground that his intimate acquaintance with the working classes showed it to be a necessary measure. During the session of 1870, in the debates on the elementary education act, he separated himself on the religious question from the Nonconformists, whose leader he was. He was an advocate of religious teaching, based on the Bible, and independent of any special creed. Mr. Morley was opposed to capital punishment, and headed many deputations to the Home Office praying for a commutation of the death-sentence upon condemned murderers. He contributed large sums to public and private charities, and was especially interested in improving the moral and social condition of the laboring-classes.

Müller, John Freiherr von, a German traveler, born in Baden-Baden in 1860; died in Marseilles, March 29, 1886. He was not deterred by a sickly constitution from applying himself severely to geographical and ethnographical studies, being possessed of an ambition to become an explorer and follow in the footsteps of his father, Freiherr J. W. von Müller, who died when the son was six years old. The movement for German colonization awakened his enthusiasm, and, after matriculating at the University of Heidelberg in 1878, he started for Egypt in order to complete his preparations for the patriotic task of aiding in the establishing German colonies in Africa by becoming familiar with Mohammedan life and customs, and hardened to tropical climatic conditions. After making a journey from the second cataract of the Nile across the deserts to Berber and Suakin, he returned to Cairo, and joined a band of pilgrims to Mecca. When in sight of the holy city of the Moslems he was detected in some ceremonial mistake, and, mounting a horse that was standing near, escaped to the sea-coast. He traveled in India, Ceylon, the African islands, eastern Africa, and returned to Germany through Asia Minor and European Turkey. After his money was exhausted he was able to continue his travels, at one time, in Madagascar, by taking meteorological observations for an English explorer, at others by keeping the log-book for a drunken sea-captain, and by serving as a waiter on a steamship. He lost nearly all the notes and journals of his first journey. After recruiting his health he set out

for Africa a second time, accompanied by his cousin, Baron von Lücke, equipped for an eighteen months' journey. They arrived in Massowah in January, 1880. Lücke was compelled to return in consequence of having accidentally shot a Habab. In spite of the unfriendly disposition of the natives, Müller remained and made several excursions into Abyssinia, and hoped to penetrate into Shoa, but was attacked by fever and plundered by the natives, and in September, 1880, returned to Europe. In the autumn of 1881 he departed again for Abyssinia, and traveled through the northern parts of that country, and through the Somali lands and Harrar and the border districts of the Galla country. He returned to Europe, and in the following spring successfully carried out a dangerous exploration of the Galla and Somali lands. Returning to Heidelberg in July, 1882, he devoted himself to the preparation of the results of his travels for publication. At brief intervals appeared "Journal of My Excursion through the Habab District and Beni Amer," "Journal of My Excursion through the District of the Gadabursi Somali and Noli Galla to Harrar," "The Region between the Victoria Nyanza and the Indian Ocean, with Reference to German Colonization," "Commercial Conditions of the Somali and Galla Countries," "The Ain Musa; or Well of Moses," etc. He took a very active part in the affairs of the German Colonial Association that was founded on Jan. 1, 1883. In the beginning of 1884 he published "Travels in the Galla Districts." In February, 1884, he was employed by the Egyptian Government on plans for an expedition to Kassala from Massowah, but in a few months was taken ill, and returned to Germany. He arranged a fourth expedition to the Galla and Somali countries, and died on the route to Africa.

Munipore, Chunder Kirtee Sing, Maharajah of, born in 1833; died June 2, 1886. He remained loyal to the English during the mutiny. He rendered effective assistance in the Looshai war in 1871, and in the Chindwin expedition.

Muspratt, James, a British chemist, born in Dublin, Aug. 12, 1793; died at Seaforth Hall, near Liverpool, May 4, 1886. He received a commercial education, and at the age of fourteen was apprenticed to an apothecary, from whom he acquired a knowledge of chemistry. In 1811 he was left an orphan and thrown upon his own resources, determined to become a soldier. In 1812 he sailed for Spain to join the army; although unable to obtain a commission in the cavalry, he continued with the army until he was stricken with the fever in Madrid. Finally, after several narrow escapes, he obtained a minor post in the navy, but soon deserted. Returning to Dublin, he spent some time in literary pursuits, after which he began the manufacture of chemicals. Later he formed a partnership by means of which more capital was added to the business, and the manufacture of prussiate of potash on a large scale was

undertaken. His attention was directed to the manufacture of soda-ash by the Leblanc process; and, unable to persuade his partner to join him, he erected the works near Liverpool, which are still in existence. He erected sulphuric-acid chambers, gradually completed his plant, and in 1823 began the manufacture of soda. At first he made only the black ash, for which the demand grew rapidly, and, after effecting improvements in his process, enlarged his works. Notwithstanding litigation and difficulty in obtaining crude materials, Mr. Muspratt steadily endeavored to diminish the cost of production, and to lower the price of the ash. For this purpose he purchased sulphur-mines in Sicily and salt-works in Winsford, but the Neapolitan Government imposed a heavy export duty on all sulphur sent to England, and in consequence the manufacture of sulphur from pyrites was established. For many years he continued successful in his business, introducing new improvements whenever possible into his works, and employing the best of scientific talent in his laboratory. In 1823, when he began the manufacture of soda-ash, this material was sold at the equivalent of £24 a ton of 48 per cent. To-day the price is £4 a ton. Sulphuric acid has been reduced from three pence to less than a half-penny a pound; soda-crystals from £60 a ton to as many shillings, and sulphate of soda from upward of £7 a ton to 27 shillings a ton. When we consider how indispensable each of these articles is to the chemical industries of to-day, some idea may be formed of the great benefit to humanity that has arisen from the development of the manufacture of alkali, much of which is due directly to the efforts of Mr. Muspratt. In 1842 he withdrew from practical connection with his business, and resided in various parts of the Continent until 1854, since when he had lived in comparative retirement at his residence, Seaforth Hall. He was intimate with many of the eminent chemists of a former generation, including Baron Liebig, Sir Lyon Playfair, Dr. James Young, Dr. Thomas Graham, and Dr. L. F. Knapp.

Norbury, R., an English artist, born in Macclesfield in 1816; died May 7, 1886. He was an exhibitor at the Royal Academy and other exhibitions, was assistant master of design, and subsequently head-master of the School of Design in Liverpool. Mr. Norbury was President of the Water-Color Society and a member of the Liverpool Academy and of the Cambrian Academy. The versatility of his artistic powers was remarkable; he could execute cartoon decorative designs and portraits with equal facility. He also gained the prize for sculpture in 1851.

Oliphant, Mrs. Laurence, a religious author, born in Paris about 1841; died in Haifa, Syria, Jan. 20, 1886. Her maiden name was Octavie L'Estrange. She was of English extraction on her mother's side, and in 1871 married Laurence Oliphant, who, as well as his

mother, had adopted the doctrines of the American sect called the Brothers of the New Life. They resided after their marriage in the United States, and afterward in Syria, where their means and efforts were devoted to the colonization of Jews in Palestine. In 1884, Mrs. Oliphant published a volume explaining her religious doctrines.

Ollier, Edmund, an English author, born in 1827; died in Chelsea, April 18, 1886. After some years of literary work he became one of the staff of "Household Words," under Charles Dickens. His principal works are: "Poems from the Greek Mythology"; "Miscellaneous Poems" (1867); a very poor "History of the United States"; "Illustrated History of the War between France and Germany" (1871); "History of the Russo-Turkish War" (1877-'79); and "A Popular History of Sacred Art," the last named illustrated by Doré.

Ordish, Rowland Mason, an English engineer, born in Derbyshire in 1824; died Sept. 11, 1886. He began his professional life during the railway mania of 1844-'47. While yet a youth he entered into the competition for plans for the Victoria Bridge, at Windsor, and, from a large number of those submitted, the Queen selected his. He was afterward engaged in working out the details of the Great Exhibition building of 1851, and also had charge of its reconstruction as the Crystal Palace at Sydenham. He was consulted on many important engineering matters, and strengthened the domes of the Exhibition Building of 1862 by a system of iron bracing of his own design. He also worked on the details of the iron-work of the Amsterdam Crystal Palace. Among his parliamentary schemes was one for a high-level suspension-bridge across the Thames, another for an underground railway from Charing Cross to join the Northwestern Railway system. Mr. Ordish was the inventor of the rigid system of suspension, carried out in the Albert Bridge across the Thames at Chelsea, which he designed and constructed. He was the promoter and actuary in many similar works on the Continent.

Palat, Lieutenant, a French soldier, born in 1856; murdered by his guides while on his way from Algiers to Senegal via Timbuctoo on a government mission. He was an accomplished linguist, and translated the account of Timbuctoo by Lenz, the Austrian explorer.

Piloty, Carl, a German painter, born at Munich, Oct. 1, 1826; died July 21, 1886. He was a pupil of the Academy, and afterward studied under Carl Schorn and in Paris. On his return to Munich he attracted notice with two *genre* pictures, "The Dying Mother" and "The Nurse," marked by the free use of color. He was for many years the director of the Art Academy at Munich, and was the originator of the coloristic tendency in modern German art and of the realistic style in German historical and *genre* painting. Makart and all the leading German colorists were his pupils. His

principal works are: "The Adhesion of the Elector Maximilian to the Catholic League in 1609," "Seni before the Dead Body of Wallenstein," "The Battle of the White Mountain near Prague," "The Death of Wallenstein," "Nero Dancing over the Destruction of Rome," "Galileo in Prison," and "The Discovery of America."

Pim, Bedford, rear-admiral in the English Navy, born June 12, 1826; died Oct. 1, 1886. He entered the navy in 1842, and, after taking part in extensive surveys on the Pacific coast of Central America, joined the Franklin search expedition under Sir E. Belcher, which sailed on board the "Resolute" in 1852, and was instrumental in rescuing the officers and crew of the "Investigator," who had been frozen in for three years. During the Crimean War he commanded the gunboat "Magpie" in the Baltic Sea. He protected Nicaragua against the filibusters in 1860. After other important services he was retired in 1870, after which he studied law, and was admitted to the bar in 1873. In February, 1874, he was returned as member of Parliament for Gravesend.

Ponchielli, Amilcare, an Italian composer, born near Cremona, Aug. 31, 1834; died at Milan, Jan. 16, 1886. He entered the Milan Conservatorium at the age of eleven, and studied under Angelini Rossi and Mazzucato. His first success was achieved by "I Promessi Sposi," an opera, which was produced at Milan in 1872. In 1873 his ballet, "Le Gemelle," was produced at La Scala, in Milan. "La Gioconda," his masterpiece, a tragic opera, was produced in 1874, and in it his style is seen in its maturest development. In 1880 "In Figliuol Prodigio" was produced at La Scala with great success.

Prior, Thomas Abel, an English line-engraver, born on Nov. 5, 1809; died at Calais, Nov. 8, 1886. He was the engraver of the "Heidelberg," "Zürich," "Apollo and Sibyl," "The Fighting Téméraire," and other famous plates from the works of Turner.

Redesdale, John Thomas Freeman Mitford, Earl of, born in Ireland, Sept. 9, 1805; died in London, May 2, 1886. He was educated at Eton, and at New College, Oxford, from which he was graduated in 1825. He succeeded his father as Baron Redesdale, in 1830. In 1851 he was appointed chairman of committees in the House of Lords. He was strongly opposed to the Divorce Bill, and published his views on the subject in a pamphlet entitled "The Law of Scripture against Divorce" (1856). He published works on doctrinal subjects, and in 1875 he entered into a prolonged controversy with Cardinal Manning on the subject of communion of both kinds. The correspondence was afterward published under the title of "The Infallible Church and the Holy Communion." He strenuously opposed Mr. Gladstone's proposals for the disestablishment and disendowment of the Irish Church, also the Irish Church Suspension Bill of 1868, and the Disestablishment Bill of 1869.

Roberts, Arthur, an English author, born in 1800; died in London, England, Sept. 4, 1886. He was graduated at Oriel College, Oxford, entered the ministry, and was rector of Woodrising for fifty-five years. He published "Church Memorials and Characteristics," "Church History of the First Six Centuries," "The Life, Letters, and Opinions of William Roberts," "An Analysis of Martin Bucer's Revision of the Prayer-Book," "Labors of Hannah and Martha More," "The Correspondence of Hannah More and Zachary Macaulay," and other works.

Rothschild, Baron, Mayer Carl von, a German banker, born in 1820; died at Frankfort-on-the-Main, Oct. 17, 1886. He was elected to represent Frankfort as a Conservative in the North-German Parliament in 1867. After the war with Austria, when Frankfort was annexed by Prussia, King Wilhelm gave him a seat in the Herrenhaus, the first instance of a Jew being admitted to that assembly.

Saint-Vallier, Comte de, a French Senator, born in 1838; died in Paris, Feb. 4, 1886. He entered the diplomatic service when quite young, and the skill he displayed while *chargé d'affaires* at Constantinople, won for him the appointment of Under-Secretary of State. In 1869 he was sent as envoy to Stuttgart, and thence to Copenhagen, and after the Franco-Prussian War he became diplomatic agent to Field-Marshal von Manteuffel, commander of the army of occupation. He was elected Senator for the Department of the Aisne in 1876, and in 1877 he became ambassador at Berlin, and was the second plenipotentiary of France at the Congress of Berlin.

Scherer, Wilhelmj, a German philologist, born in 1841; died Aug. 6, 1886. He enjoyed a wide reputation as a lecturer on the German language and literature at Vienna, then in the new University of Strasburg, and in the last years of his life in Berlin. He aided Müllenhoff in a profusely annotated collection of "Monuments of German Poetry and Prose," published researches relating to the eleventh and twelfth centuries, and a great work on the "History of the German Language"; also a "Sketch of Jacob Grimm."

Scherr, Johannes, a German author, born in Hohenrechberg, Swabia, Oct. 3, 1817; died Nov. 22, 1886. He was the son of a teacher, and became a teacher himself, settled in Stuttgart in 1843, and became a leader among the Democrats. In 1848 he was elected to the Assembly, and after the suppression of the revolution in 1849 fled to Zürich. He became Professor of History and Literature in the university there in 1860. He was a prolific poet and prose-writer, and is best known by his "Universal History of Literature," "Schiller and his Times" (1859), "Life of Blücher," and "Germany," a history of German life and manners.

Schmidt, Julian, a German critic and historian, died in Berlin, March 28, 1886. He was in the earlier part of his career a controversial

writer, who provoked a bitter attack from Ferdinand Lassalle, and himself assailed Gretzkow with savage severity. In conjunction with Gustav Freitag he founded and edited the "Grenzboten," a political magazine, at Leipzig. Later he devoted himself to literary history at Berlin, published a "History of Romanticism," a "History of German Literature in the Nineteenth Century," and began a "History of German Literature from the Time of Leibnitz," the first volume of which was issued a few weeks before his death.

Scindiah, Bhajeerut Rao, Maharajah of, an Indian prince, born in 1835; died in Gwalior, June, 1886. He was placed upon his throne by the English in 1843, after the hostile spirit of the Mahrattas in Gwalior had been broken by the victories of Purniar and Maharaipur. He was descended from a race of warriors, and at an early age gave all his thoughts to military matters, leaving the work of civil administration in the hands of his able minister, Dinkur Rao. His attitude was watched with anxiety when the mutiny broke out in 1857, and but for the prudence and restraint of Dinkur Rao, and the personal influence of the English representative, Maj. Charters Macpherson, he would doubtless have obeyed the natural dictates of his age and blood, and placed himself at the head of the army he had re-created and led it against the foreign rulers. His position after the Gwalior contingent had mutinied was very peculiar: he was the friend and ally of the English, but his troops were arrayed against them, and the utmost he and his minister could do was to hold his troops in a state of inaction during the greater part of the summer of 1857, and it was not until the fall of Delhi that they broke loose from his control. When Gwalior fell into the hands of the Rani of Jhansi and her general Tantia Topee, on June 1, 1858, it was only the swiftness of his horse that saved Scindiah from the rage of those who considered that he had been false to the cause. On June 19 the rebels were defeated and Gwalior captured, and Scindiah was restored to his throne. He still devoted his leisure to the improvement of his army, and adopted the plan of passing his troops rapidly through the ranks, so that, while there were not more than 10,000 men in his standing army, he could call up three or four times as many trained soldiers, should the necessity ever arise. After the mutiny, the English placed a garrison in the fort of Gwalior, and since then this was considered by the prince as a standing slight to his dignity, dwarfing his authority in the eyes of his subjects. This cause of discontent was removed by the restoration of the fort in the early part of 1886. Scindiah is succeeded by his son, who was born in 1880, a regent having been appointed to act until the young prince is of an age to rule for himself.

Small, John, Librarian of the University of Edinburgh; died in that city, Aug. 20, 1886. Dr. Small was graduated at the university in 1847,

and appointed librarian in 1854. Among his contributions to literature were his edition of "English Metrical Homilies from Manuscripts of the Fourteenth Century," "The Works of Gauin Douglas, Bishop of Dunkeld, with a Life of the Bishop," "Sir David Lindsay's Monarchie," "Laing's Remains of Early Scottish Poetry," "The Poems of William Dunbar," and "Derrick's Image of Ireland," besides historical and biographical papers published in the transcriptions of the Edinburgh Royal Society of Antiquaries and in various encyclopedias and periodicals. The degree of LL. D. was conferred upon him by the University of Edinburgh in 1886.

Solly, Edward, an English scientist, born in 1819; died in Surrey, April 2, 1886. He was educated in Berlin, appointed chemist to the Royal Asiatic Society in 1838, lectured on chemistry at the Royal Institution in 1841, was honorary member of the Royal Agricultural Society in 1842, Fellow of the Royal Society in 1843, Professor of Chemistry in the East India Company's Military College at Adiscombe in 1845, and Honorary Professor of Chemistry to the Horticultural Society in 1846. Besides several works in which the importance of chemistry to agriculture was maintained, he wrote "Rural Chemistry" (1843) and "Syllabus of Chemistry" (1849).

Stockhardt, Julius Adolf, a German chemist, born in Röhrsdorf, Saxony, Jan. 4, 1809; died in Tharaud June 1, 1886. He received a classical education, and studied pharmacy and the natural sciences, being graduated in 1833 as an apothecary of the first class. Subsequently he spent a year in travel, visiting Belgium, England, and France, and afterward devoted himself to pharmaceutical study and research, for which in 1838 he received the degree of Ph. D. from the University of Leipzig. At once he began teaching in Dresden, but at the end of a year was called to the Technical School in Chemistry, where he remained until 1847. Meanwhile, in 1844, he began a course of lectures before the Chemistry Agricultural Society, which led to the establishment of the system of agricultural stations, and he received the appointment of inspector of apothecaries. In 1848 he was invited to fill the new chair of Agricultural Chemistry in the Academy of Tharaud, where he remained until his death. As a scientific investigator, Stockhardt has been outranked by other agricultural chemists of his time, but his great work has been in the development of the application of science to agriculture by means of his journals and books. In this field he stands foremost, and the yield of grain in Saxony alone is said to have been doubled through his efforts. From 1846 till 1849 he edited "Das Polytechnisches Centralblatt," and from 1850 till 1855 "Die Zeitschrift für deutsche Landwirthe." In 1855 he established "Das chemische Ackersman," published in Leipzig, which he continued until 1876, when his increasing years and the es-

tablishment of "Die Landwirthschaftlichen Versuchs-Stationen" caused its discontinuance. In this journal appeared his familiar lectures before farmers' clubs and societies, cailed by him "field-sermons." These he collected and published as "Chemische Feldpredigten" (1851), and they have been translated into English by J. E. Teschemacher as "Chemical Field Lectures for Agriculturists" (Cambridge, 1853). His other works are "Untersuchung der Zwickauer Steinkohlen" (1840); "Ueber Erkennung und Anwendung der Giftfarbe" (1844); "Schule der Chemie" (1846), known in English as "The Principles of Chemistry, illustrated by Simple Experiments" (Cambridge, 1850), and "Guanobuchlein" (1851).

Stradbrooke, John Edward Cornwallis Rous, Earl of, an English soldier and land-owner, born Feb. 13, 1794; died Feb. 3, 1886. He was the eldest son of Sir John Rous, who was created Earl of Stradbrooke, was educated at Westminster School, entered the army in 1810, and took part in nearly all the battles of the Peninsular War. He served afterward in the Netherlands, and at the end of the Napoleonic wars retired from the army. He succeeded his father in 1827. On his estate of Henham in Suffolk he introduced the system of allotments for laborers forty years before the agitation on the subject began. While a Conservative, he was famed for his liberality as a landlord and his efforts to improve agricultural methods. He was one of the pioneers in scientific and experimental farming. He was also well known as a sportsman, possessing a celebrated stud of thoroughbred horses and the finest kennel of greyhounds in England. At the time of his death, Lord Stradbrooke was the oldest peer in the House of Lords.

Taylor, Sir Henry, an English author, born in 1800; died at Bournemouth, March 27, 1886. He entered the Colonial Office in 1824, and remained in active connection with that office for forty-eight years, and during this time he devoted himself to the study of English and foreign literature. His first drama, "Isaac Comnenus," appeared in 1827, and was succeeded in 1834 by "Philip Van Artevelde," the greatest of his works, upon which his fame chiefly rests. In 1836 he issued "The Statesman," a book of maxims respecting the transaction of public business, in the form of a manual, which many regarded as serious, though it was really intended as a satire on the duplicity and evasions of official life. This was followed in 1842 by "Edwin the Fair, an Historical Drama"; "The Eve of the Conquest, and other Poems" (1847); "Notes from Life" (1847); "Notes from Books" (1849), and several dramas. His "Autobiography" was published in 1885.

Tecchio, Sebastiano, an Italian statesman, born in Vicenza, about 1805; died in Venice, Jan. 24, 1886. He studied law, and joined the Venetian Liberal party, and during the movement of 1848 was sent to Turin by the Provisional Govern-

ment to ask for the annexation of Vicenza and other Venetian provinces to Piedmont. On the formation of the Gioberti ministry, on Dec. 16, 1848, he accepted the portfolio of Public Works, which he held until the fall of that administration in 1849. He was one of the Vice-Presidents, and later President of the Chamber of Deputies in the Subalpine Parliament. On the liberation of Venice he was at the head of the commission who carried to Victor Emanuel the unanimous vote of that province. He was appointed chief judge of the Venetian Court of Appeals. In 1866 he was made a senator of the kingdom; and in November, 1876, was elected President of the Senate, which office he held until 1884, when some cautious words of an Irredentist character spoken from his presidential chair obliged his resignation and terminated his political career.

Teschenberg, Baron Ernst von, an Austrian journalist, born in 1836; died Feb. 25, 1886. He was editor of the "Wiener Zeitung" at the age of thirty-two, and under the ministry of Count Andrassy exercised an important influence in political affairs, and drafted many diplomatic notes, and sometimes the royal address. He accompanied Andrassy to the Berlin Congress, and soon after was ennobled.

Thomas, Edward, an English numismatist, born in London, Dec. 31, 1813; died in Kensington, Feb. 10, 1886. After completing his studies, he went to India in 1832, and succeeded Sir Henry Elliot in the secretaryship of the foreign department in the administration of the Punjab. He afterward became judge of Delhi and contiguous territories. He devoted himself with special zeal to the study of the antiquities and history of India and Asia. In 1873 he was elected a corresponding member of the French Institute, and several years later received a similar honor from the St. Petersburg Academy. He became a Fellow of the Royal Society, and a Companion of the Order of the Indian Empire. The first and in some respects the most important of his works was his edition of James Prinsep's "Antiquities" (1858). This was followed by "Ancient Indian Numerals" (1863), "Early Sassanian Inscriptions, Seals, and Coins" (1868), and the "Chronicles of the Pathan Kings of Delhi" (1871), in which he added a supplement on the "Revenue Resources of the Mughal Empire." His "Ancient Indian Weights," which forms an introductory essay of the "Numismata Orientalia," of which he was the founder, is the standard authority on the subject. Between 1848 and 1866, Mr. Thomas contributed sixteen papers to the "Journal" of the Royal Asiatic Society, of which he was honorary treasurer. These papers related exclusively to Eastern coins, and were republished with the title of "Tracts on Oriental Literature." He was also the author of valuable contributions in the twentieth volume of the Bengal Asiatic Society's "Journal." He was joint editor of Sir Henry Elliot's posthumous "History of England."

Thuong, formerly Regent of Anam, born about 1825; died at Tahiti, July 30, 1886. He negotiated for King Tudeu in the convention of 1874, and also signed the conventions of 1882 and 1884, but afterward intrigued against France. He eventually gave himself up to Gen. Courcy, and was exiled to the island of Tahiti, with a pension of 60,000 francs.

Torlonia, Allesandro, Prince of Civitella Cesi, Musignano, Camino, and Farnese, Marquis of Roma, Vecchia, and Torrita, born in Rome, June 1, 1800; died Feb. 8, 1886. He was the youngest and most enterprising of the sons of Giovanni Torlonia, who was originally a small shopkeeper in Siena, but eventually became a broker of great wealth and influence, and Duke of Bracciano. The son inherited a considerable patrimony, which he largely increased by taking long leases of the salt and tobacco monopolies in the Papal and Neapolitan states. He became finally the greatest capitalist in Italy, and his receptions in Rome were long the resort of all the most illustrious families of the ancient capital. So rapidly did his wealth accumulate, that he became the principal holder of the real estate in the city and province of Rome. He filled his palace and villa with the choicest works of art, and gave continual orders to Italian artists for the reproduction of the most famous works of art. He was an ardent friend of the Pope, and rendered that dignitary many important services. Prince Torlonia made extensive excavations of ancient sites, and his collection of antiquities was said to rank next to that of the Vatican. His greatest enterprise was his successful draining of Lake Fucino, a work vainly undertaken by one of the old Roman emperors. Lake Fucino is in the province of Aquila. He drained the lake, and recovered for agriculture 16,000 acres of land. In recognition of his services to agriculture and the public health, Victor Emmanuel, in 1875, conferred upon him the grand gold medal, and created him Prince of Fucino. The prince married in 1840 the Princess Therese Colana Doria, then in her seventeenth year, by whom he had two daughters.

Trevelyan, Sir Charles, an Indian official, born in England in 1807; died in London, June 20, 1886. He married a sister of Lord Macaulay in 1834. He attracted the favorable notice of his superiors when a young official in the Indian civil service by denouncing a prominent official under whom he served for taking bribes, and proving his charges. He was the leading spirit in the work of educational reform in India, and induced the Government to adopt the European rather than the Oriental system of education. In 1840 he left India, and became Assistant Secretary of the Treasury in London. There he took the lead in the movement for civil-service reform, and was the author of the system of competitive examination. In 1859 he returned to India as Governor of Madras, but was recalled in 1860 on account of having published a protest against the finan-

cial proposals of the Government. In 1862 he was himself appointed Indian Finance Minister, which office he resigned in 1865 on account of ill-health. After his return to England he advocated the abolition of purchase in the army, of which reform his son, George Otto Trevelyan, became the parliamentary champion. He was knighted in 1848 for his services in superintending the Government measures for the relief of the Irish during the famine. In 1874 he was made a baronet.

Trolle, Henrik Af, a Swedish novelist and biographer, born in 1829; died in 1886. He served in the Swedish Navy for nearly twenty years, wrote novels of sea-life, and has been called the Swedish Marryat. He wrote "Captain Thomas Darell," "The Officer," "Gustav III's Will," "Jakob Tuvall," and many other stories. His works have been translated into most of the European languages.

Tulloch, John, senior Principal of St. Andrews University, born near Tippemuir, Perthshire, in 1823; died at Torquay, Feb. 13, 1886. He completed his literary and philosophical studies at the United College of St. Andrews, and studied theology at St. Mary's College. He afterward spent some time in Germany, studying the philosophy and speculative theology of that country. In 1854 he was appointed Professor of Divinity and Principal of St. Mary's College, St. Andrews. The chief among his many works are the "Leaders of the Reformation," "English Puritanism and its Leaders," and "Rational Theology and Christian Philosophy of the Seventh Century."

Uhlieh, Joseph Alexis, a French soldier, born at Pfalsburg, Feb. 15, 1801; died at Passy, Oct. 11, 1886. He was educated at the Military College of St. Cyr, took part in the campaign of 1823 in Spain, and reached the grade of division-general in 1855, and was placed on the reserve staff in 1866. On the breaking out of the Franco-Prussian War he resumed active service and was assigned to the defense of Strasburg, but was compelled to capitulate after a siege of forty-eight days.

Urruh, Herr von, a German statesman, born at Tilsit in 1806; died at Berlin, Feb. 4, 1886. He was for many years a prominent figure in the Prussian National Assembly, and its president in 1848. Besides many treatises on political economy, he wrote "Sketches of the Modern History of Prussia" (1849); and "Experiences of the Last Three Years" (1851).

Waltz, George, a German historian, born in Flensburg, Schleswig, in 1813; died May 26, 1886. He studied law and history in the Universities of Kiel and Berlin. He belonged to the historical school of Leopold von Ranke, with whom he was an active collaborator in his "Annals." He was appointed Professor of History at Kiel in 1842, and later accepted the same chair at the University of Göttingen, which he retained until 1875, when he was called to Berlin by the Academy of Sciences to succeed M. Pertz as director of the publica-

tion of the "Monumenta Germaniae Historica." His principal works are: "History of the German Constitution" (1843-78); "History of Schleswig and Holstein" (1851-54); "Lübeck under Wullenwever" (1856); "Life and Doctrines of Ulfilas"; "German Emperors from Charles the Great to Maximilian," and numerous short contributions to German history.

Webster, Thomas, an English artist, born at Pimlico, March 20, 1800; died Sept. 22, 1886. He entered the Royal Academy as a student in 1820, and was first brought into public notice by a picture entitled "Rebels Shooting a Prisoner," a scene of boy mischief, exhibited in 1825. One of the most characteristic of his pictures, "Anticipation" (1839), represents a baker's boy bringing home a pie, which a hungry-looking lad at the door eyes with expectant satisfaction. In 1846 he was elected a full member of the Academy. His drawing was easy and unaffected, his coloring harmonious, and his composition simple. He exhibited many paintings, among which are "The Gunpowder Plot" (1828), "The Sick Child," "The Card-Players," "The Love-Letter," "The Smugglers," "The Lantern," "A Village School," "Late at School," "Bird-Catchers," "The Rat-Trap," "Foot-Ball," regarded as his best effort prior to 1840, "Punch" (1840), "The Smile" and "The Frown" (1841), "The Boy with Many Friends" (1841), "The Wanderer" (1842), "The Grandmother," "Contrary Winds" (1844) "The Dame's School" (1845), "Good-Night" (1847), "A Rubber" (1848), "Attraction" (1851), "The Race" (1855), "Hide and Seek" (1856), "Autumn and Winter" (1860), "A Game of Draughts" (1864), "Volunteers at Artillery Practice" (1871), "The Prompter" (1874), "Youth and Age" (1876), "The Letter" (1877).

Willkomm, Ernst Adolf, a German novelist, born in Herwigsdorf, Saxony, Feb. 10, 1810; died there, May 26, 1886. He was educated at the Gymnasium of Zittau and the University of Leipsic. At the university he engaged in the study of law, but soon turned his attention to literature, and while still a student wrote his first works, "Bernhard, Duke of Weimar," a drama (Leipsic, 1833), and "Eric XIV, King of Sweden" (3 vols., Leipsic, 1834). During the years 1837-39 he edited "Jahrbücher für Drama, Dramaturgie und Theater" (Dramatic Art Annuals), and published "Novels of Civilization," "The Europe-Weary," and "Lord Byron: a Poet's Life." In 1845 and the following years he traveled in Southern Europe, and he took part in the war in Italy in 1849. Eleven of his books came from the press in the years 1840-48. Of these, "The White Slaves" (5 vols., Leipsic, 1845), and "Borderers, Fools, and Pilots" (3 vols., Leipsic, 1842), are perhaps the best known. He was for some time editor of the "Lübecker Zeitung," but withdrew from that post in 1852 on account of failing health, and removed to Hamburg, where he established a

boarding-school for young girls, worked editorially on the "Jahreszeiten," and "Hamburger Correspondent," and wrote numerous romances, including "The Family Ammer" (3 vols., Frankfort, 1855); "Peter Pommering" (2 vols., Prague and Leipsic, 1856); "Ship-Owner and Sailor" (2 vols., Frankfort-on-the-Main, 1857), and "Banco" (2 vols., Gotha, 1857). A few years ago Dr. Willkomm returned to spend his remaining days in his native place. His last work of importance was "Bruised Hearts" (3 vols., Berlin, 1874). He belonged to the aesthetic school of romance-writers, and is admired for naturalness, vigor, and inventive talent. Besides the works already mentioned, his publications include "The Interpreter of Dreams" (3 vols., Stuttgart, 1840); "Traditions and Tales of Upper Lusatia" (2 vols., Hanover, 1843); "Wallenstein" (4 vols., Leipsic, 1844); "Poet and Apostle" (2 vols., Frankfort-on-the-Main, 1859); "Wandering Souls" (3 vols., Jena, 1866); "A Step-Child of Fortune" (3 vols., Leipsic, 1867); "Modern Sins" (3 vols., Nordhausen, 1861); and many others.

Zaleski, Bohdan, a Polish patriot and poet, born in 1801; died at Villeprieux, near Paris, April 1, 1886. He was a scion of the noble family of Ukraine, but was orphaned at an early age. He devoted himself to study of the history and legends of his race, and wrote poems on these themes. In 1825 he went to Warsaw, and took part in the movement that led to the revolt of 1830-'31. He was present at the battle of Grochow, and in 1831 was returned as a deputy to the Polish Diet. After the fall of Warsaw he removed to Paris and contracted an intimate friendship with Prof. Mickiewicz, of the College of France. For some years before his death he was totally blind, and he survived all his relatives.

Zunz, Leopold, Hebrew educator, born in Detmold, Germany, in 1794; died in Berlin, March 19, 1886. He entered the University of Berlin in 1816. In 1818 he published "Etwas über die Rabbinische Literatur," and in 1820 was appointed preacher to the new synagogue in Berlin, but had to resign on account of the unusual frankness of his sermons. He was an intimate friend of Heinrich Heine, in whom he inspired the poems of the "Rabbi von Bacharach." In 1824 he became an editor on the "Spener Gazette," and after 1831 devoted himself to his great work on the liturgy of the Jews. In 1835 he was appointed the first German preacher in Prague, but soon returned to Berlin, where in 1839 he was appointed director of the Teachers' Seminary, a post that he held for eleven years. In 1845 he wrote his important fragment on "The History of the Middle Ages," and in 1848 published a Liberal pamphlet on the events of that year, for which he was affectionately nicknamed "Vater Zunz" by the populace of Berlin. In 1855 he published his "Synagogue Poetry of the Middle Ages," containing the celebrated section on

the persecutions and the elegies referring to them, a passage that was taken by George Eliot as the text from which much of "Daniel Deronda" was written, the key-note being struck in the following: "If a literature which owns a few classical tragedies is deemed rich, what place should be assigned to a tragedy which extends over fifteen centuries and which has been composed and enacted by the heroes themselves?" A Zunz foundation was established in commemoration of his seventieth birthday, and his ninetieth birthday was celebrated as a festivity in the synagogues throughout the German and Austrian Empires.

Ohio. State Officers.—The State officers for 1886 were: Governor, Joseph B. Foraker; Lieutenant-Governor, Robert P. Kennedy; Secretary of State, James S. Robinson; Auditor, Emil Kiesewetter; Treasurer, John C. Brown; Attorney-General, Jacob A. Kohler; Commissioner of Common Schools, Leroy D. Brown; Board of Public Works, Wells S. Jones, John P. Martin, C. A. Flickinger. Judges of the Supreme Court: Selwyn N. Owen, Thaddeus A. Minshall, Martin D. Follett, William T. Spear, William W. Johnson; Clerk of Supreme Court, J. W. Cruikshank.

Finances.—The total of balances in the treasury at the close of the fiscal year 1885 was \$254,038.79. The receipts into the treasury during 1886, from all sources, amounted to \$5,775,903.74. The disbursements for the same period were \$5,573,721.29, leaving a cash balance in the treasury, November 15, of \$456,221.24. The receipts include \$500,886.97, received from the sale of bonds authorized by the act of May 13, 1886. The general revenue fund showed a deficit, to meet which a temporary loan was obtained. The actual receipts for the fund were \$2,755,733.90; the appropriations for the same period were \$3,079,-852.89, and the actual disbursements \$3,079,-511.41, the appropriations being \$324,118.99, and the disbursements \$323,777.51 in excess of the receipts. To provide for this deficit a temporary loan of \$500,000 at 3½ per cent. was made, due July 1, 1887. In his annual report, at the close of the fiscal year, the State Auditor pointed out that the estimated disbursements for the coming year are very largely in excess of the estimated receipts, and unless provision is made for a larger revenue, or the expenditures greatly decreased, the State will have to suspend payment before the fiscal year closes.

Property and Taxation.—The grand duplicate of the State for 1886 showed 25,524,067 acres, valued at \$714,769,130; real estate in cities, towns, and villages to the value of \$458,937,-575; chattel property to the value of \$515,-569,463, giving a grand total of value for taxation purposes of \$1,688,676,168. The State tax was 2 and $\frac{1}{10}$ mills, yielding \$4,894,593.98, and the total taxes for all purposes, including delinquencies and forfeitures, except a per capita tax on dogs (\$206,748), was \$33,378,558.16.

State and Local Debts.—The public funded debt

of the State, Nov. 15, 1886, was as follows: Loan payable after Dec. 31, 1886, 6 per cent., \$2,025,139.19; payable July 1, 1887, 3½ per cent., \$500,000; July 1, 1887, 4 per cent., \$500,000; July 1, 1888, 4 per cent., \$600,000; July 1, 1891, 3 per cent., \$18,425; July 1, 1894, 3 per cent., \$100,000; July 1, 1898, 3 per cent., \$100,000; canal loan, not interest-bearing, \$1,665; total funded debt, \$3,845,229.19; an increase during the year of \$125,000. There is also an irreducible State debt (trust funds) of \$4,515,778.45. The local debts aggregate \$53,528,386.75, being an increase during the year of \$237,988.22.

Railroads and Telegraphs.—The State Commissioner of Railroads and Telegraphs reports the number of miles of railway of standard gauge at 6,407.2; narrow gauge, 839.3. Of these there were in the hands of receivers 1,020.6 miles of standard gauge and 290.4 miles of narrow gauge. Capital stock paid in, \$525,-238,034.41; funded debt, \$518,729,643.88; unfunded debt, \$42,640,210.44; total stock and debt, \$1,086,607,908.68. Gross earnings, \$98,-110,120.60; decrease of 2.84 per cent.; operating expenses, \$69,832,524.38; per cent. of gross earnings, 71.18; net earnings, \$28,277,-596.22. Passengers carried, 31,781,707; passengers carried one mile, 1,106,569,058; average receipts per mile, 2.139 cents. Tons of freight, 74,883,939; tons one mile, 10,134,-250,983; rate per ton per mile, 0.658 cent. There has been a graded reduction of freight rates for the past nineteen years. Killed, 68 passengers, 94 employés, 193 others; total, 295. Injured, 41 passengers, 447 employés, and 177 others; total 665. The ratio is 1 passenger killed to every 3,960,213 carried, and 1 passenger injured to every 775,163 carried. The telegraph companies report 9,996 miles of poles and 43,840 miles of wire in the State, with 834 offices and 1,158 employés.

School Statistics.—The State School Commissioner reported the number of youths of school age in the State, September, 1886, at 1,101,-358, an increase in the year of 5,957; number of school-houses erected within the year, 397; cost of same, \$799,747; estimated value of school-houses, including grounds, \$28,467,005; number of teachers necessary to supply schools, 18,454; number of teachers actually employed, 24,620; average number of weeks schools were in session in township districts, 29; in separate districts, 34. The number of pupils enrolled in the schools was 1,875,149; average number of pupils in daily attendance, 517,844; number of school-officers, 52,198. Total expenditures, \$10,121,897.77, being an increase of \$27,959.60.

Criminal and Benevolent Statistics.—The reports of the several State institutions for the punishment and reform of criminals, and care and treatment of the unfortunate, show the number in the different institutions for the year, with the per capita cost, to have been as follow: Insane asylums—Athens, 1,013, \$158.21; Cleveland, 916, \$170.17; Columbus, 1,180, \$159.02;

Dayton, 801, \$163.24; Longview, 932, \$140.43; Toledo, 163, \$155.69; Deaf and Dumb Asylum, 447, \$181.09; Blind Asylum, 263, \$249.64; Institution for Feeble-minded Youths, 788, \$154.76; Soldiers and Sailors' Orphans' Home, 650, \$118.56; Ohio Penitentiary, 2,308, \$142.20; Reform School for Boys, 833, \$90.21; Girls' Industrial Home, 335, \$119.19. In addition to the insane and otherwise unfortunate in the State benevolent institutions, the county auditors' reports show the following statistics: Deaf and dumb, 1,243; blind, 1,106; insane, 1,948; idiotic, 1,284.

Liquor-Selling.—Under the provisions of the so-called Dow law taxing the liquor-traffic, passed in the spring of this year, the county auditors made returns of the number of places selling liquor, and tax assessed. The number of saloons taxed \$200 each was 8,941; of saloons taxed \$100 each, 2,989; total amount of assessment, including penalties, \$2,144,129.71.

Refunding the State Debt.—More than half the State funded debt fell due at the end of the year. To provide for this, an act was passed in 1885, authorizing the Commissioners of the Sinking Fund to refund that portion of the debt. In accordance with the provisions of the act, a contract was made March 24, 1886, with Albert Netter, of Cincinnati, by which Netter agreed to deliver the whole amount of the \$2,240,000 6-per-cent. bonds, and take for them an equal amount of new 3-per-cent., payable annually, in sums of \$250,000 from July 1, 1891, and also to pay a premium of \$21.35 for each \$1,000.

Public Works.—The report of the Board of Public Works shows the rents and tolls from the canals to have aggregated \$124,030.25, and the disbursements \$238,091.78, there being an increase of receipts and decrease of expenditures to the net amount of \$30,559.73.

The Legislature.—The sixty-seventh General Assembly met January 4. The members holding certificates of election were: Senate, 20 Democrats and 17 Republicans; House, 58 Republicans and 52 Democrats. The seats of four senators and ten representatives from Hamilton County were in dispute, the certificates of the Democratic sitting members having been issued on the face of the returns, which, it was claimed by the contesting candidates, were based on frauds. The credentials of the sitting members in the House were reported on adversely by a committee, and their seats were given to the Republican claimants, the membership then standing 68 Republicans and 42 Democrats. In the Senate, proceedings were instituted to oust the four Democrats from Hamilton County, and occupied the greater part of the session. The point turned on the question whether the proceedings should be against the members individually or as a body. In the former case the Democrats claimed that each three could vote on the case of the fourth. If the question was made strictly partisan, there would then be 19 Democrats to 17 Republicans. If the other plan was adopted, there would

be 17 Republicans and 16 Democrats voting. A committee of six, equally divided between the two parties, was made by agreement, to investigate the charges of fraud. The committee was at work from February 4 to April 29. On the latter date two conflicting reports were presented to the Senate, and May 5 was set for considering them. Lieutenant-Governor Kennedy's rulings during the discussion were protested against by the Democrats, and they refused to vote. Fourteen of them absented themselves, and left the State, to avoid the Sergeant-at-Arms. In their absence, the Republicans remaining unseated the four Hamilton County Democrats and seated the Republican contestants, thus making a Republican majority in the full Senate. The roll was not called. The case was carried to the Supreme Court, on the ground that a minority only of the full Senate had voted. The court held that it must accept the record of the Senate as final evidence, and as that did not show the number voting, there was no proof that the vote was invalid. The absentee Senators did not return to their seats before the Senate adjourned for the annual recess.

Hon. John Sherman was re-elected U. S. Senator in the early part of the session.

Laws Passed.—The disputed organization prevented much legislation except for local purposes until the session was well advanced. In addition to those specially treated below, the following were among the laws passed of a general nature: Establishing a State Board of Health; reorganizing the Ohio National Guard; creating the office of Dairy and Food Commissioner; authorizing the Governor to proclaim contagious or infectious diseases in animals; to prevent adulteration and deception in the sale of dairy products; amending the game laws and providing for the appointment of Fish and Game Commissioners; providing for registration and regulating elections in Cincinnati and Cleveland.

Redistricting the State.—Immediately after the ousting of the four Democrats from the Senate, the Legislature passed a law redistricting the State for congressional purposes. Under the previous apportionment, made by a Democratic Legislature, the membership stood Democrats 11, Republicans 10. Under the new apportionment the election in November returned 15 Republicans and 6 Democrats.

Liquor-Traffic Legislation.—Several attempts were made by previous Legislatures to tax the liquor-traffic without conflicting with the constitutional prohibition of liquor-licensing. The so-called Pond law and Scott law were successively passed, enforced, and then annulled by the Supreme Court, as being in the nature of a license law. In the present Legislature another attempt was made in the so-called Dow law. Under this law the business of "trafficking in spirituous, vinous, malt, or any intoxicating liquors," was taxed \$200 yearly, and "malt or vinous liquors, or both," \$100. Mu-

nicipal corporations were given the power to "restrain and prohibit" places where intoxicating liquor is sold at retail. A number of cases under this law were taken to the Supreme Court, which, in a series of decisions, sustained the law in every feature. Several municipalities passed prohibition ordinances.

The Elections.—The amendment to the Constitution having gone into effect, the elections were held in November instead of in October as formerly. Four tickets were in the field. The result was as follows, the successful candidate in each case being Republican, the next Democratic, the third in size of vote Prohibition, and the smallest vote Greenback:

SECRETARY OF STATE.

Robinson	341,095	| McBride	829,314
Smith.	23,932	| Bonsall.....	2,010

JUDGE OF SUPREME COURT.

Williams.....	343,739	| Follett.....	826,927
Stewart.....	29,321	| Johnson.....	2,275

CLERK OF SUPREME COURT.

Hester.....	344,517	| Cruikshank.....	825,046
May.....	20,455	| Watras.....	2,627

STATE COMMISSIONER OF COMMON SCHOOLS.

Tappan.....	344,341	| Brown.....	825,943
Hagood.....	29,166	| Curtis.....	2,268

MEMBER BOARD OF PUBLIC WORKS.

Hahn.....	344,557	| Ludwig.....	825,148
Teachout	29,391	| Graham.....	2,256

ONTARIO, PROVINCE OF. Finances.—The revenue for 1885 amounted to \$3,005,920.71, and the expenditure to \$3,046,112.83. Among the principal items of revenue were: The Dominion subsidy, \$1,196,872.80; interest on capital held and debts due by the Dominion to the province of Ontario, \$279,111.10; interest on investments, \$50,284.86; crown-lands, \$736,864.95; Education Department, \$38,749.72; law-stamps, \$66,988.02; licenses, \$162,330.07; public institutions, \$99,112.62. The principal items of expenditure included: Civil government, \$184,254.70; legislation, \$125,762.04; administration of justice, \$354,923.35; education, \$533,564.46; maintenance of public institutions, \$613,570.89; immigration, \$19,088.11; agriculture and arts, \$159,576.45; hospitals and charities, \$96,421.28; repairs and maintenance of public buildings, \$62,601.54; public buildings, \$155,720.29; public works, \$38,690.80; colonization roads, \$121,435.32; charges on crown-lands, \$96,573.08; railway fund, \$250,808.01. The assets of the province are \$7,135,000.31; liabilities, \$368,910.02.

Commerce.—The exports for the fiscal year ending June 30, 1885, amounted to \$25,849,756; or, including the amount estimated short returned at inland ports and exported to the United States, \$28,434,731. The amount returned for the United States is \$20,992,134, and for Great Britain, \$4,634,283. The principal articles of export were: Agricultural products, \$8,209,880; animals and their produce, \$7,866,978; produce of the forest, \$7,371,028; manufactures, \$1,176,796.

The imports in the same period entered for consumption amounted to \$39,285,143; the

principal importing countries being the United States, \$22,374,036, and Great Britain, \$14,325,530. Of the above total, goods to the value of \$10,318,687 were imported duty-free. The duties levied on the remaining \$28,966,456 of imports amounted to \$6,534,174.38.

Politics.—The principal issue in Ontario politics during 1886 was the educational question. The Education Department is under control of a member of the Provincial Cabinet, and the Conservatives advocated a return to the old system of having a non-political Superintendent of Education. Among the reasons urged for the change, the one that excited most discussion was the charge that the Education Department was being every year brought more under the influence of Archbishop Lynch, head of the Roman Catholic Church in that province. The Conservatives alleged that the archbishop had for years exerted all his influence in favor of the Liberals in provincial election contests, and that, to compensate him for his services, changes had been made in the education laws. They said that, although the Roman Catholics had separate schools of their own, and were not obliged to contribute to the support of the public schools, the archbishop was consulted in the selection of text-books for the public schools, and that at his demand Sir Walter Scott's "Marmion" and Collier's "History of England" were banished from the schools; that the Bible had been removed from the public schools and replaced by a book of scriptural selections approved by Archbishop Lynch; that, although Roman Catholics had the same voting privileges as Protestants in the election of high-school boards, the law also provided that the Roman Catholic Church should have a special representative on each high-school board; that Protestant landlords with Roman Catholic tenants were obliged to pay taxes to support Roman Catholic schools, while Roman Catholic landlords with Protestant tenants were not obliged to pay taxes to the public schools; and that, instead of asking each Roman Catholic whether he preferred to support public or separate schools, assessors were obliged by law to assume that every Roman Catholic was a supporter of separate schools; so that, in order to send his children to the public schools, a Roman Catholic must make a formal appeal. In reply to these charges, the Liberals said that, as a number of Roman Catholics were attending the high-schools, it was necessary to have some regard for their feelings, and the changes were made with a view to encouraging higher education among the Roman Catholics, who being in a minority, could not elect co-religionists to the high-school boards; that the book of Scripture selections used in the public schools had been submitted to leading ministers of all the Protestant denominations, as well as to the Roman Catholic archbishop, and had been approved by all, the only change made by Archbishop Lynch being an alteration of "which" to "who" in the

Lord's Prayer. With regard to the other changes in the school law, they argued that there could not be anything very objectionable in them, as when they passed the House the Conservative members had made no objection. The provision regarding the payment of taxes by landlords and tenants, they said, had been wrongly interpreted by the Conservatives, as it was intended that the same rule should apply to both Protestant and Roman Catholic landlords—i. e., that the religion of the tenant should decide the question. At the provincial elections, held on Dec. 28, the Roman Catholics voted solidly for the Liberals, and the Conservatives gained but few Protestant votes. The Mowatt Government (Liberal) was sustained by a largely increased majority.

OFFICE.	Republican candidate.	Vote.	Democratic candidate.	Vote.	Prohibition candidate.	Vote.
Congressman.....	Binger Herman.....	26,918	N. L. Butler.....	25,283	G. M. Miller.....	2,753
Secretary of State.....	G. W. McBride.....	26,212	R. F. Gibbons.....	25,922	A. C. Kinney.....	2,775
State Treasurer.....	G. W. Webb.....	26,908	H. F. Marston.....	25,130	John Long.....	2,725
Superintendent of Public Instruction.....	G. B. McElroy.....	26,637	Napoleon Davis.....	25,331	W. D. Lyman.....	2,666
State Printer.....	F. C. Baker.....	26,363	Charles Nickell.....	25,375	J. R. Shepherd.....	2,700
Supreme Judge.....	J. B. Waldo.....	26,860	R. S. Strahan.....	27,094	.....	.....

The Legislature consists of 19 Republicans and 11 Democrats in the Senate, and 35 Republicans and 25 Democrats in the House.

Finances.—The balance in the State Treasury Jan. 1, 1885, was \$485,747.20. The receipts into the treasury for the term ending Jan. 9, 1887, including the foregoing balance, amount to \$1,870,263.85. The disbursements of the treasury for the term ending Jan. 9, 1887, amounted to \$1,487,780.47; leaving a balance in the treasury Jan. 9, 1887, of \$382,483.38. The total amount of indebtedness is \$53,632.93. The whole amount of the taxable property of the State, as shown by the assessment-rolls, was as follows: For 1884, \$78,776,011; for 1885, \$77,188,694. The general expenses of the State government are paid from the tax levied for current expenses, which constitutes what is known as the general fund. To this fund are also credited all collections from miscellaneous sources, such as the sale of insurance stamps, the care and treatment of private insane patients, prison earnings, etc.

The following is a summary showing the total amounts of the several trust funds:

IRREDUCIBLE SCHOOL FUND.	
In the hands of State Treasurer.....	\$54,854 26
In the custody of the several local agents.....	353,551 07
Due on outstanding certificates of sale.....	159,556 44
Sundry old land-notes in custody of clerk of board.....	1,447 24
Total.....	\$1,059,409 01
UNIVERSITY FUND.	
In the hands of State Treasurer.....	\$75,764 66
Due on outstanding certificates of sale.....	2,840 16
Note of Cornelius Clancy for land	66 67
Total.....	\$78,171 49
AGRICULTURAL-COLLEGE FUND.	
In hands of State Treasurer.....	\$34,202 10
Due on outstanding certificates of sale.....	14,453 05
Land-notes of P. M. Bangor.....	230 00
Land-notes of G. E. Tieds.....	100 00
Total.....	\$99,015 15

OREGON. State Government.—The following were the State officers during the year: Governor, Zenas F. Moody, Republican; Secretary of State, R. P. Earhart; Treasurer, Edward Hirsch; Superintendent of Public Instruction, E. B. McElroy; Immigration Commissioner, Samuel Rothschild. Supreme Court: Chief Justice, John B. Waldo; Associate Justices, William P. Lord and William W. Thayer.

Political.—The State election occurred on the 7th of June, and resulted in the election of a Democratic Governor and Judge, while the other State officers and the Congressman chosen were Republicans. Sylvester Pennoyer was the Democratic candidate for Governor. The following were the candidates for the other offices, with the vote for each:

Whole number of organized districts in the State in 1885.....	1,886
Whole number of organized districts in the State in 1886.....	1,871
Whole number of persons between four and twenty years, 1885.....	80,018
Whole number of persons between four and twenty years, 1886.....	82,860
Increase.....	2,842
Number of pupils enrolled in 1885.....	46,107
Number of pupils enrolled in 1886.....	49,176
Increase.....	3,069
Daily average attendance during 1885.....	31,005
Daily average attendance during 1886.....	35,245
Increase.....	4,240
Number of teachers employed in public schools in 1885.....	1,701
Number of teachers employed in public schools in 1886.....	1,861
Increase.....	160
Number of school-houses in 1885.....	1,291
Number of school-houses in 1886.....	1,375
Increase.....	84
Total value of school property in 1885.....	\$1,160,493 14
Total value of school property in 1886.....	\$1,229,998 00
Increase.....	\$79,504 86
Average salary paid male teachers per month, 1885.....	\$48 22
Average salary paid male teachers per month, 1886.....	\$46 20
Decrease.....	\$2 02
Average salary paid female teachers per month in 1885.....	\$36 96
Average salary paid female teachers per month in 1886.....	\$34 65
Decrease.....	\$2 31
The State University, at Eugene City, has 8 instructors in the collegiate department. It has an endowment of about \$126,000, and	

receives an annual appropriation from the State of \$5,000. The State Agricultural College at Corvallis has 5 instructors and 52 students. There are normal schools at Ashland, Monmouth, Drain, and Weston. There were reported in 1886, 44 colleges and academies. The State has a school for the education of the blind and also a school for educating deaf-mutes.

Penitentiary.—The following is a statement of convicts received, discharged, and remaining: Number remaining Dec. 31, 1884, 274; received from Jan. 1, 1885, to Dec. 31, 1886, 251; escapes recaptured, 1; returned from insane asylum, 1; discharged, 241; highest number confined, 298; lowest number, 268; daily average number, 278.71. The total appropriation for 1885 and 1886 was \$58,420; total expenditure, \$57,172.26. The cash earnings for the two years were \$36,063.82. In addition, nearly 4,000,000 of brick were manufactured by convict-labor for the State.

Constitutional Amendments.—The last Legislature proposed three amendments to the Constitution, one relating to the salaries of State officers, one relating to prohibition, and one changing the time of State elections from June to November. Action upon those proposed amendments is required at the session of 1887, and, if they are agreed to, it will be its duty to submit them to the voters of the State for final action. The suggestion has been made that a convention should be called to revise the Constitution. "But it is not at all necessary," says the Governor, "that a convention should be called. We have a safe conservative Constitution now, and the necessary changes, if any, can be made by the slower and better way—that of legislative suggestion."

Registry Law.—Both parties having declared for it, the Legislature at its last regular session passed a general election law, among the provisions of which was one requiring the registration of voters preceding each election. At

the special session following, some imperfections in the law were remedied, and another act was passed, definitely describing the manner in which registration should be made, and the necessary steps were taken for carrying it into effect. A few days preceding the time mentioned in the law, in which registration should be made, the various officers appointed to carry it into effect abandoned all further compliance with its provisions in regard to registration, and as a consequence the operation of the law in that regard was suspended. This condition of affairs was the result of a suit brought before the courts by a citizen of Multnomah County, in which it was demanded of the court that an injunction be issued against the county commissioners of that county restraining them from auditing and allowing bills against the county incurred in the execution of the registration law. The Supreme Court commanded the issuance of the injunction prayed for, for the reason, as alleged by the court, that that part of the statute relating to registration was not the law of the State, it being, in the judgment of two of the three judges of that court, in conflict with a provision of the State Constitution.

Statistics.—The following figures are from the census of 1885, Baker County missing: Pounds of wool, 9,165,830; number of sheep, 1,636,929; of hogs, 202,612; horses, 165,909; mules, 3,591; cattle, 373,247; acres under cultivation, 1,243,904; bushels of wheat, 8,933,718; oats, 6,247,300; barley and rye, 1,694,614; corn, 273,497; tons of hay, 377,822; pounds of butter and cheese, 3,287,923; bushels of flax-seed, 14,262; pounds of hops, 2,547,378; bushels of potatoes, 2,650,284; of apples, 2,005,373; prunes and plums, 150,306; tons of coal, 29,600; pounds of silver, 100; ounces of gold-dust, 14,965; feet of lumber, 169,135,726; pounds of tobacco, 18,207; of salmon, 3,316 barrels, 483,594 cases, and 404 kits; 3,155 baskets of oysters.

P

PAPER ENVELOPES, BAGS, Etc. Prior to 1830 envelopes were unknown, and they were not generally adopted in this country until about 1850. Letters were written on large sheets of paper folded so that the writing could not readily be seen, and were secured with sealing-wax or wafers. The introduction of cheap letter-postage in England in January, 1840, largely increased the volume of correspondence by mail, and created a demand for some quicker and easier method of folding and sealing. An English stationer named Brewer is believed to have been the first to introduce to the public the paper envelope substantially as it exists to-day. That such envelopes, made of leather, parchment, or even of paper, have

been used for special purposes from time immemorial, goes without saying.

The popular history of envelopes is closely identical in Great Britain and in the United States, and in both countries it dates from the introduction of cheap letter-postage. Until 1839 the British Post-Office charged double rates for two pieces of paper, no matter in what shape, which, of course, prohibited envelopes. The postage-reform act was passed on Aug. 17, 1839, and on the 10th of January, 1840, the penny-postage letter-rate went into effect. Envelopes soon began to make their appearance in the mails, but were not very generally used until the introduction of stamps and stamped envelopes by the Government,

May 6, 1840. Before the end of the year the number of letters passing through the mails more than doubled, and in 1841 more than half of the letters posted were inclosed in envelopes. In 1850, 290,000,000 enveloped letters passed through the mails in Great Britain alone, and there, as well as in America and all other lands, it has rapidly increased ever since.

At first envelopes were regarded with disfavor by fastidious people. The gummed seal-flap inevitably suggested the tongue as the most natural and convenient source of moisture necessary to induce adhesion, and it was held to be an affront to send a letter that could be suspected of having undergone such treatment. The Duke of Wellington is said to have waxed very wroth over a transgression in this regard, but the innovation was so very convenient that not even the disapproval of the aristocracy could impair its popularity, and for a generation letters folded in the old way have been practically obsolete, save as fashion now and then decrees a temporary revival of the custom.

In the United States the introduction and manufacture of envelopes kept pace with that of Great Britain. Comparatively cheap rates of letter-postage were introduced in 1843, and with each successive reduction the demand for envelopes increased.

For nearly ten years hand processes furnished all that were used, but it became evident that the demand must speedily outrun the supply, and by 1840 an envelope-making machine was devised in England, but was not patented, and does not appear to have done satisfactory work. The first English patent (No. 10,565) was issued to Edwin Hill and Warren De la Rue, March 17, 1844, and the machine was subsequently improved and exhibited by its inventor at the World's Fair in London in 1851, where it attracted much attention.

The first American patent (No. 6,055) was issued to J. K. Park and C. S. Watson, Jan. 23, 1849, and the number of patents on envelopes and envelope machinery now numbers not far from 300 in the United States alone, while the daily consumption of envelopes for letters only is estimated at 12,000,000 to 15,000,000. This makes no account of the many millions of seed and sample envelopes.

The manufacture of envelopes by hand is such a simple matter that for several years the demand was supplied by the most primitive methods. A diamond-shaped pattern of wood, cardboard, or metal was used as a guide for knife or shears in cutting paper to the desired shape. The folding, gumming, etc., were all done by hand, as were the subsequent operations of counting and separating into packages.

As the demand increased, hand-tools were devised, so that several sheets could be cut through at once. These were in effect chisels, one very broad, so that its cutting-edge was several inches long, and the other bent so that

it would cut a right angle (C, C, Fig. 1). To use them to advantage the paper had to be held firmly upon a cutting-table, while the chisel was driven through with a mallet. The workman at first held the sheets down by main strength, pressing his elbow upon a block resting on the paper while he drove his chisel, but a simple and ingenious toggle-joint arrangement soon superseded the primitive method, so that the several sheets of paper were held firmly while the trimming was done by hand. This toggle-press is shown in Fig. 1. A represents several sheets of paper; B, the block that holds them down and receives the direct press-

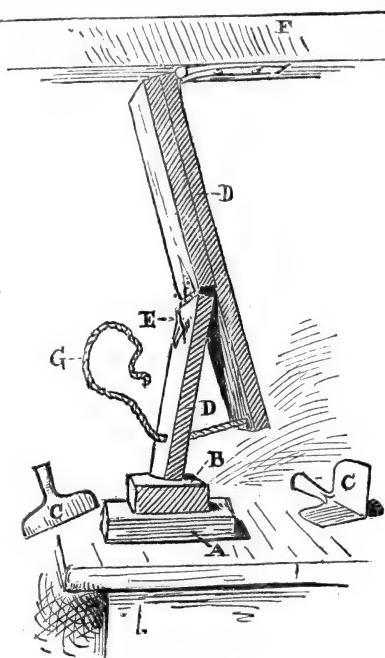


FIG. 1.—TOGGLE-PRESS.

ure; D, D, is the toggle, composed of two legs, one inflexible and the other hinged about midway of its length, as shown. To the end of the inflexible leg a line, G, is made fast which passes through a hole near the end of the hinged leg. F is a solid timber or other adequate overhead support. It is evident that a pull upon G must cause a powerful downward thrust upon B. When the pressure is sufficient, G is carried up to the cleat, E, and made fast. The facility with which pressure can be applied and released with this contrivance renders it very convenient. C, C, represent the chisels at first used in making envelopes, and which are still used in filling small orders for irregular sizes.

The folding and gumming were at first done by hand, wooden blocks of the desired size

being used to facilitate creasing and turning up the flaps. Subsequently sheet-iron dies were made, with which the paper was creased preparatory to gumming, and the operation was completed with a bone folder.

All envelope-making machines deal with the "blanks," as they are called, namely, lozenge-shaped pieces of paper prepared beforehand. The early methods of cutting have been described. The modern method requires a steel die, shown in Fig. 2, which is placed on a pile

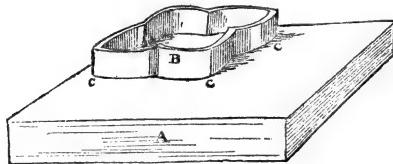


FIG. 2.—ENVELOPE-CUTTER.

of 250 sheets of paper, and forced through them all at once under a powerful press. A is the pile of paper; B, the thick upper edge of the die, and C, C, C, its lower or cutting edge. The outline of the die sufficiently indicates the general shape of envelope-blanks, though it is varied according to fancy or special requirements. A die of this kind costs about \$15, and has to be made of the finest steel, in order to stand the tremendous pressure and retain its keenness of edge.

In some machines an attendant feeds the blanks one at a time, laying each sheet upon a table, where the side and the bottom flaps are touched with gum and carried forward to be folded, an operation which is performed in different ways by different machines. In the original De la Rue machines (Fig. 3) there

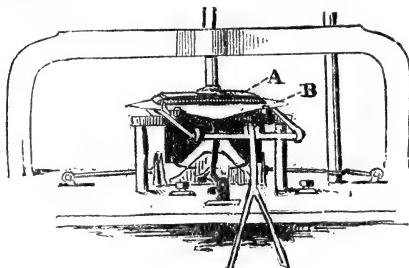


FIG. 3.—DE LA RUE MACHINE.

was a rectangular opening, B, the size of the intended envelope. The blank (represented by a dotted line in the figure) was placed over this, and a plunger (A) descended upon it, pressing it down through the opening upon a lower table, the flaps being of course bent upward (C) against the sides of the plunger. Instantly the plunger was withdrawn, and four

hinged folders, corresponding in shape with the flaps of the envelope, folded down the already gummed flaps, and the work was done. The finished envelope fell into a receptacle, and the operation was repeated at the rate of about sixty in a minute. The verbal description seems very simple, but in point of fact the operation involves a number of eccentric movements that call for very nice calculation and adjustment. These movements are effected by cams so adjusted that with clock-like regularity the folders move when the plunger rises, and retire after having done their duty. The gummed rollers are always exactly in position when the plunger begins to descend, and all this reciprocal action goes on without a hitch.

A large majority of the machines in use employ this device of a plunger and its attachment. Some of the modern improvements point to a different system, indicated in Fig. 4, where the blank is carried by arms and rollers under a thin metal slab, D, over which the side and bottom flaps are folded with hardly a perceptible check in the onward progress of the envelope. These machines are peculiar, in that the blank starts, as it were, at one end of a table some five feet long by two and a half feet wide, and is delivered finished at the other end, with scarcely a pause, after its edge is first lifted by the device described farther on. It is adjustable for any ordinary size of envelope, and will turn out 120 or more in a minute. Until recently machines have been practically non-adjustable—that is to say, they could be changed from one size of envelope to another only at a considerable loss of time. This was especially the case with the plunger-machines, where several changes had to be made in the principal attachments. The machine described in connection with Fig. 4 is readily adjustable to any ordinary style of envelope, and does its work more smoothly and directly than any of the plunger-machines.

One of the difficulties in gumming envelopes by machinery lies in the seal-flap—the one that serves to close the envelope. The other flaps are pressed together as soon as they are gummed, and left to adhere where they are intended to remain; but, in order to gum the seal-flap by machinery, it must not be allowed to touch anything until it has had time to dry, and become harmless to itself as well as to the other clean envelopes with which it may be brought in contact in packing for shipment. In the early machines, many of which are still in use, the blanks were gummed by hand, and dried before being fed to the machine, but the difficulty was overcome by providing wire racks fixed upon a slowly running band. When the side and bottom flaps had been gummed and folded, the seal flap was gummed and creased for folding, but before the operation was completed it was dropped into the wire-racks and made a journey of about three minutes' duration through a moderately warm current of air

which dried the fresh gum before the circuit was completed. In the latest machines the envelopes are delivered in packs of twenty-five on a table in front of an attendant, who has only to fix a paper band around each package.

A step in advance are the self-feeding attachments which enable the attendant to lay a pile of blanks upon the table and let the machine feed itself. This necessitates the lifting of the blanks one by one. It is effected sometimes by the gummers which, attached to arms, descend upon the pile of blanks. The top blank adheres to them and is picked up, carried forward and disengaged from the gummers by the descent of the plunger. A still more ingenious device is to raise the blank by air-suction. In Fig. 4, A is a pile of blanks, and

technically called a tube—that is, it is a bag without a bottom. While in this condition it usually receives whatever label or other printed matter it is designed to bear, and is then sent to a special machine which with wonderful rapidity cuts two slits at the bottom of the tube, gums the edges, folds the corners over, and in an instant turns out the complete paper bag with one end closed in such a way that, when filled with flour or meal or any suitable article of commerce, it will permit the bag to assume a nearly cylindrical form without any weak angles at the bottom where it would be likely to tear when subjected to a strain from within.

The manufacture of paper and cardboard boxes for fancy packages of confectionary, for all the smaller varieties of goods sold by retailers, is enormous. These boxes are frequently of a complicated pattern, but the ingenuity of manufacturers has devised a species of die that at one motion cuts and creases a piece of cardboard so that it is ready to be folded and packed for shipment. This species of goods merits description, since it involves an exceedingly nice degree of mechanical skill. Usually, designs more or less elaborate are wanted on each of the exterior surfaces of the box. As the simplest box must have at least four sides and a top and bottom, it is evident that a good deal of planning is necessary. The printing, usually from a lithographer's stone, is done on the uncut sheet of cardboard with due regard to economy of material. Next a die is made on a stout slab of wood, corresponding in size with the sheet of cardboard. When it is remembered that several boxes are to be cut out at once, that some angles must be *creased* and others *cut*, and that the whole must register to a hair's breadth, the difficulty of the mechanical problem can be appreciated. The die is made by setting firmly in the wooden slab a system of knives and creasers, which project about one quarter of an inch above the surface of the wood. The die is set on edge, and held firmly in position in a frame, while another frame, similar in size, carries the cardboard, and for a moment presses the whole sheet against the die. Then the movable frame falls back, the sheet of cardboard is removed, and the operation is repeated. A very ingenious device in this connection should not be overlooked. Of course, when the knives push through the cardboard they have a tendency to retain it when the pressure is removed. To prevent this, the whole surface of the die is studded with little bent strips of cardboard fastened to the wooden slab so that each gently resists being pressed down flat against the slab, and their combined effort is sufficient to free the cardboard from the knives as soon as the positive pressure is removed.

The variety of shapes in which boxes and envelopes are made is only equaled by the infinite diversities of individual taste, and the insatiable desire for something new even in such a simple thing as the wrapper for a paper

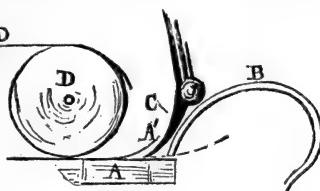


FIG. 4.

B is a rubber tube leading to a small suction-pump, actuated at proper intervals by the motion of an attachment. At the end of the tube is a small metal fixture, E, indicated by dotted lines adjusted so that it rests lightly upon the upper envelope blank, and is slightly raised as soon as the air in the tube is exhausted. To this fixture the top blank adheres and is raised as indicated enough for a carrier, C, to run forward under it, detach it wholly from the pile and deliver it—the air-suction being at this instant released—to the rollers under the form, D, which in turn carry it forward to the folding arrangements already described.

The manufacture of paper bags is closely allied to that of envelopes, but the machinery for making them is of comparatively recent invention, and differs from envelope machinery in many particulars. The bags are made of all sizes, from a few inches square up to the capacity of a flour-barrel, and are used in enormous quantities by retailers of all sorts of goods. As in the case of envelopes they were at first made by hand, but machinery was soon devised to meet the increasing demand. The paper is first cut to the desired size and laid upon a sloping table, whence it is carried by rollers under an iron slab of the exact width of the intended bag, the principle being the same as that indicated at D, Fig. 4, in the envelope machinery. It moves at a rapid rate until its forward corners encounter two bent plates of smooth iron something like plowshares, one of them on either side of the slab. These first raise the corners and forward edges of the moving sheet, then cause them to bend inward until the edges of the sheet overlap and adhere to one another, having been already gummed. The bag is now

of pins or a box of matches. From one establishment in the city of New York these boxes are sent to Europe in large quantities, and in the same establishment are made paper pie-plates at a cost wholesale of about one half a cent each, and deeper dishes for the use of retail dealers in butter and other similar trades at a price that enables them to be given away by the seller and thrown away by the buyer. Such dishes, with many other useful articles, are made upon molds under a pressure of about 300 tons.

PARAGUAY, a republic in South America. (For details relating to area, population, etc., see "Annual Cyclopædia" for 1885.)

Government.—The President is Gen. Escobar (elected in November, 1886). Pending the formation of his Cabinet, the members of the Cabinet of his predecessor retained their portfolios; they were: Secretary of State and of the Interior, Col. Mesa; Foreign Affairs, Señor J. S. Decoud; Finance, Señor A. Canete; Justice and Public Worship, Señor Gonzalez; War, Col. Duarte. The United States Consul and chargé d'affaires at Asuncion is Samuel A. Walton. The Paraguayan Consul-General at New York is R. R. Barthold.

Anglo-Paraguayan Treaty.—A treaty of commerce and navigation between Great Britain and Paraguay was signed during the summer of 1886. The treaty accords most-favored-nation treatment to British goods and vessels. It applies to all British colonies except those of India, Canada, Newfoundland, Australia, Tasmania, New Zealand, the Cape, and Natal, but may be extended to any of these on notice being given by the British representative in Paraguay within two years from May 10, 1886.

Finances.—The home indebtedness of the republic through the sale of Government lands and the operations of a sinking-fund created by adding 10 per cent. to the import duties, has been reduced to the trifling sum of \$331,730. The foreign debt was reduced to \$4,250,000 by the convention with foreign bondholders, signed at London on Dec. 4, 1885. The interest due on this consolidated debt will be 2 per cent. annually during the first five years; 3 per cent. the next five years, and 4 per cent. per annum thereafter. A sinking-fund at the rate of half of 1 per cent. yearly has been provided, to become operative at the expiration of the tenth year.

The chief sources of revenue are the custom-houses, which produced \$673,008 in 1884, against \$525,000 in 1883. The total income of the Government during 1884 reached \$839,970, while the expenditure did not exceed \$803,285. The budget for 1885 estimated the income at \$1,437,900; the outlay, \$1,317,024.

Tobacco.—Foreigners residing in Paraguay experiment on the remarkably fine tobacco grown in the country, which in fragrance and appearance, as well as suitableness for the manufacture of cigars, is ranked with Manila; but,

in spite of its intrinsically good qualities, it does not bring abroad the price it would if better cured and properly prepared for market. Paraguayan tobacco-growers are said to be strangely inexperienced and negligent.

Commerce.—There were imported into Paraguay, in 1884, \$1,448,000 worth of merchandise, compared with \$953,000 the previous year; while the export of Paraguayan products was \$1,572,000 in 1884, against \$1,766,000 in 1883. In 1885 the chief exports consisted of tobacco, which was represented by \$861,798; yerba maté (Paraguay tea), \$790,400; hides, \$249,584; and cabinet and dye woods to the amount of \$234,087; these four articles alone constituting a total exportation of \$2,185,869. There were exported, besides, some oranges and other minor products.

PATENTS. A comparison of the year 1886 with 1885 discloses a slight falling off in patents issued, and a slight increase in the number of applications for patents.

STATISTICS.	1885.	1886.
Receipts (net)	\$1,158,089 15	\$1,154,551 40
Expenditures.....	1,024,378 85	992,508 45
Receipts over expenditures.....	\$168,710 30	\$162,047 95
Amount in Treasury to credit of office, January 1	\$2,945,495 58	\$3,107,458 58
Expenditures for salaries.....	\$598,599 00	\$605,948 80
Total number of applications for patents for inventions.....	84,697	85,161
Total number of applications for patents for designs, reissues, trade-marks, and labels.....	2,968	2,879
Patents issued, including designs	24,104	22,392
Patents reissued	129	116
Trade-marks registered.....	1,057	1,029
Labels registered	891	878
Number of patents expired during year	12,554	12,957
Withheld for non-payment of final fee.....	8,588	8,308
Patents issued to citizens of the United States.....	22,555	20,903
Patents issued to foreigners	1,549	1,489

Among the States, Connecticut leads in inventiveness for 1885, with 1 patent for every 615 inhabitants, for 1886 with one for every 729. Massachusetts and the District of Columbia follow next for both years, in the order named. Mississippi, with 1 patent for every 21,761, is most backward in 1886. For 1885, North Carolina, with 1 for 17,280, is the last. In 1886, England took 548; Canada, 275; Germany, 272; and France, 144 patents; and ten countries but 1 patent each. In 1885, England took 549; Canada, 284; Germany, 298; and France, 138 patents. For this year, also, ten countries took 1 patent each.

Annual Reports.—The Commissioner of Patents issued his annual report for 1885, dated Jan. 30, 1886, in the "Official Gazette" of Feb. 16, 1886. The annual report for 1886, dated Jan. 31, 1887, appeared in the "Official Gazette" of Feb. 8, 1887. The burden of the recommendations in both reports is the same, more room, a laboratory, and readjustment of

salaries being asked for. The force has been increased, in accordance with the Commissioner's request in his report for 1885. The arrears of work have been brought up, until but four divisions are in arrears 100 days and upward, and but one division 150 days. In concluding the 1886 report, the Commissioner says: "I feel so confident that changes and modifications, too numerous to be dwelt upon in detail or to be pointed out in this report, of a substantial character, which would materially affect the prosperity and usefulness of this office entire, are imperatively needed, that I can not refrain from concluding by again urging upon Congress the necessity of providing in some way, by commission or otherwise, for a complete and exhaustive revision of the entire legislation, and, probably, of the rules which affect this office."

Litigation.—The most important trial in court has been the hearing in the united Bell telephone suits before the U. S. Supreme Court. Five of the principal suits in which the Bell Company had been complainant, and secured judgments in the Circuit Courts, were heard together, on appeal, before the Supreme Court Bench. This is the first time the Bell patents have come before this tribunal, and it will be a matter of much interest to note the treatment they will receive. The general tenor of decisions in the Circuit Courts has been to interpret patents fairly, and give them, as far as possible, an equitable scope. In the Supreme Court the treatment continues as rigorous as ever, and reissues are generally declared invalid. We cite below a few of the points brought out in the decisions of the different courts, with volume and page of the "Official Gazette," where reports can be found. One decision, rendered in the April term of the Circuit Court for the Northern District of Ohio (Fed. Rep., xxviii, p. 754), deserves a special notice. In it the Court (Welker, J.) decided that where a patent has been applied for on an invention, the court has jurisdiction to grant an injunction to restrain its infringement pending the hearing. Opinions of Justice Washington and of Justice Clifford were quoted in support of this decision. The case is of special interest as marking a liberal and equitable treatment of one who has declared his intention of taking out a patent. The case is entitled *Butler vs. Ball*, and can be found in the "Official Gazette," xxxviii, 4.

Legislation.—A number of attempts were made to secure the passage of bills tending to curtail the rights of patentees, but without success. An enactment was passed, and has become law, correcting certain defects in the law relating to patents for designs. Under the old law the Supreme Court held that in the case, for example, of a carpet-manufacturer who complained of an infringement of his design or pattern of carpet, the complainant must clearly prove what portion of the damage, or what portion of the profit made by the infringer,

was due to the use of the patented design. It was practically impossible to make this showing. Hence the infringer could imitate the patented design without liability, and the law was a nullity. Under the provisions of the new law, the infringer is obliged to pay the sum of \$250 in any event; and if his profits are more than that sum, he is compelled, in addition, to pay all excess of profits above \$250 to the patentee. It is believed that the penalty of \$250, irrespective of profits, will supply the amount, and will make the law protective and efficient.

Decisions of Courts.—The following are among the most important decisions:

Patent expiring during Proceedings.—A suit in equity was brought on May 5, 1885, on letters patent which expired on June 16 following. There was service on the defendants on May 7, but no steps were taken to obtain a preliminary injunction; the bill, however, on its face disclosing a case cognizable in equity. Held, that the court would not dismiss the bill because of the expiration of the patent. *Dick vs. Struthers*, 34, 1.

Misuse of Words in Claim.—It was insisted by the defendant that the complainant's reissue was void because, in expressing the claim, the word "woof" was used for "warp." Held, "Such a casual misuse of words could not mislead any one who would read the claim in connection with the drawings and specifications of the patent, to which he is referred by the words 'substantially as described.'" *Reed vs. Street*, 34, 3.

Combination Claim and Equivalents.—A claim for a combination of three elements is not infringed by the use of only two of them where the omitted element has a function of its own not performed by the elements used in the device claimed to infringe. . . . An inventor who is only an improver, and not the first in the art, is not entitled to invoke, broadly, the doctrine of mechanical equivalents so as to cover devices not specifically claimed. *Foley Furniture Company vs. Colby*, 34, 11.

Expired Patent.—Held, "That the court would interfere after a patent had expired to restrain the sale of articles manufactured previous to its expiration in infringement of a patent right." *N. Y. Belting and Packing Co. vs. McGowan*, xxxiv, 11.

New Features in Infringing Device.—If by the addition of certain elements a machine is constructed which is properly the subject of a patent as an improvement, it does not follow that the original patented construction has not been appropriated. *Tate vs. Thomas*, xxxv, 2.

Feature claimed but not shown in Patentee's Earlier Patent.—The fact that the complainant showed a feature in an earlier patent did not of itself preclude him from claiming it in a subsequent patent. *Wilson vs. Culley*, xxxv, 2. Held, that reproduction of original claims in reissues is not affected by lapse of time, and that anticipations must be separately complete (Supreme Court decision). *Yale Lock Manufacturing Company vs. Sargent*, xxxv, 3.

Infringers limited in Proof of Infringement.—While an improvement upon an earlier patent may support a valid claim, and is not inconsistent with such earlier patent, one who infringes both the earlier patent and the improvement upon it is not permitted to set up the earlier patent as an anticipation of the improvement patent (Supreme Court decision), *Cantrell vs. Wallack*, xxxv, 7.

Statutory Novelty, and New Use.—The word "new" in section 4886 Revised Statutes means new to the extent of requiring the exercise of the inventive faculties. . . . The statement of a new use of the article not found in the original patent, but imported into a reissue obtained after unreasonable delay, will not confer validity upon a claim whose novelty rests upon

such new use (Supreme Court decision), Gardner *vs.* Herz, xxxv, 8.

Secret Process.—One who invents or discovers and keeps secret a process of manufacture, whether patentable or not, has a property therein which the court will protect against one who, in violation of contract, or with breach of confidence, undertakes to apply it to his own use or disclose it to a third person (N. J. State Court of Chancery decision), Salomon *vs.* Herz, xxxv, 9.

Public Use.—The fact that a person claiming to have invented a device in 1874 or 1875, knew that another had put it into public use in 1878, is sufficient to defeat his claims to take out a patent in 1883, even if he had been the inventor. Hutchinson *vs.* Everett, xxv, 9.

Excuse for Delay in applying for a Reissue.—The excuse that patentee was ignorant of the laws pertaining to letters patent is wholly insufficient. Haines *vs.* Peck, xxv, 10.

Partial Infringement.—In selling a compound which he knows can not be practically applied without making the user an infringer, the defendant becomes an accessory to the infringement. Alabastino Company *vs.* Payne, xxxv, 12.

Extent of Novelty required to constitute Invention.—Where an old device or machine in general use, with acknowledged serious defects which have been long endured because no one has previously discovered a means of obviating them, is taken in hand, and, by changing its former structure, they are removed and a different and greatly improved result obtained, it may safely be affirmed that the change required invention. Asmus *vs.* Freeman, xxxv, 2.

Construction of Claims.—The several claims of a patent should be so construed if possible that each may represent distinct inventions. Cohansey Glass Manufacturing Company *vs.* Wharton, xxxvi, 3.

Infringement by a Part of a Device.—Where the combination patented is only a part of the machine, it is infringed by the use of the same combination in another machine.

Exploitation and Use.—A patentee is bound either to use the patent himself or allow others to use it on reasonable and equitable terms. Hoe *vs.* Knap, xxvi, 11.

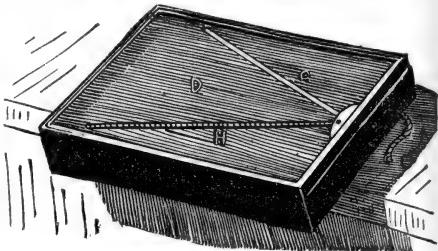
Construction of Patents.—As a patent is read by persons skilled in the arts, so should it be read by the court. Tondeur *vs.* Stewart, Estep & Co., xxxvii, 7.

Invention and Mechanical Skill.—Where the distinction between invention and mechanical skill is very doubtful, the doubt should be resolved in favor of invention. Butler *vs.* Bainbridge, xxxvii, 10.

Inventions.—The great inventions and discoveries of the year will be found under their respective heads. The following descriptions embrace a few of the thousands of minor inventions, patented and unpatented, that were made during the year 1886. The list is by no means exhaustive. The intention has been to select such devices as are of the most general interest.

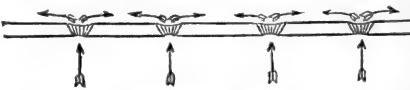
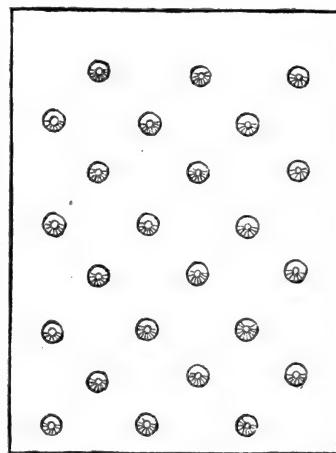
Electrical Metronome.—Great difficulty has been experienced, by the conductors of operatic music, in maintaining relations with the leaders of the side choruses, who are frequently out of sight, and can only keep time by guess-work. A French electrician, Carpentier by name, has done away with the difficulty by arranging a small blackboard so that time is apparently marked upon it by the oscillations of a white band. The movement is in reality an optical delusion. The figure shows the board, with a white band (G) pointing toward the upper, and a dark one (H) toward the lower corner. A

simple electrical mechanism causes the white band to become black at the same instant that the black one becomes white, and so in alternation, corresponding with the strokes of the leader's *bâton*. The effect upon the eye is precisely the same as if a white rod were moved back and forth across the space marked D.



ELECTRICAL METRONOME.

The connecting wires (C) are led to a pedal on which the foot of the conductor rests and upon which he presses in time with the motion of his hand. The seeming rod moving across the blackboard can be seen by the performers without being directly looked at, and answers the same purpose as the movement of a leader's *bâton*. This apparatus has been introduced with manifest advantage in the Paris Opéra. It is not apparent why the same effect could not be produced without mechanism by simply flashing an electric light behind slits in the blackboard, filled perhaps with ground glass. In this way the mechanical arrangements could be considerably simplified.



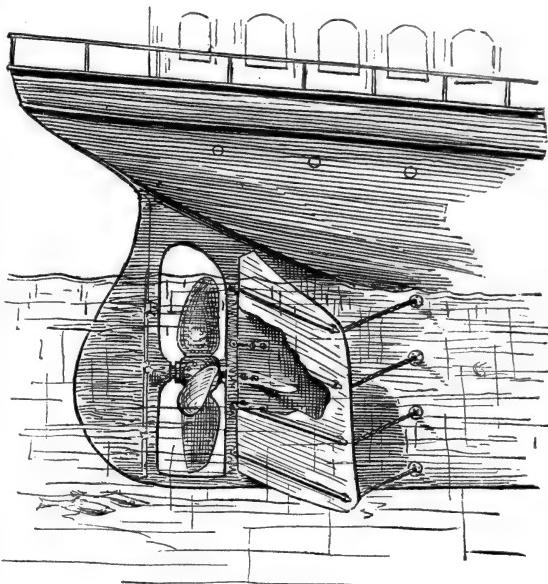
Glass, Perforated.—Prof. Émile Trelat, of the French Conservatory of Arts and Trades, has

long advocated perforated glass for the better ventilation of hospitals, or indeed of any rooms, but the difficulty of manufacturing it has hitherto stood in the way. This difficulty has now been overcome, and glass is made with circular openings of three mm. diameter, spaced fifteen mm. from axis to axis. This gives 5,000 apertures to the square metre. The openings, as shown in the diagram, are made flaring, with the small opening outward, which causes the incoming currents of air to separate on entering the room, as indicated in the cross-section. It is said that no troublesome draught is perceptible when the upper panes of a window are fitted with this glass, and whatever outward draught there may be is concentrated by the funnel-like shape of the aperture. Such glass in the windows of crowded lecture-rooms would no doubt greatly increase the comfort of the audience. The small circular marks in the illustration indicate the perforations. The arrows in the sectional view indicate the distributing effect of the flaring aperture upon incoming currents of air.

McAdams Fins.—Such is the singular but appropriate name given by its inventor, John McAdams, to a device for instantly checking the headway of steamboats or other vessels. During the summer of 1886 it was in use on the steamer "Florence," in New York Harbor, and was tested under various conditions and with highly satisfactory results. The illustration shows the principle of the attachment, namely, two stout doors hinged one on each side of the stern-post of the vessel. Part of the fin is cut away in the drawing, to show the spring that serves to start it outward on being released. The four chains shown lead through dead-eyes into a water-tight chamber, and thence upward over a sheave to a large spiral spring that cushions the strain when the resistance of the water is felt. It will be readily understood that, if the fins are released when the vessel is under way, the pressure of the water will force them outward until stopped by the chains, when their entire surface offers itself to check further headway. The invention was thoroughly tested by a board of naval officers in August, 1886, and their report certifies that the "Florence," when under full headway, was stopped and moved astern in twelve seconds and within a space of about thirty-five feet. There is no doubt that when kept in working order the McAdams fins are highly efficient as a marine brake, and would, if generally adopted, prevent many collisions. The fins are also readily available as auxiliary rudders

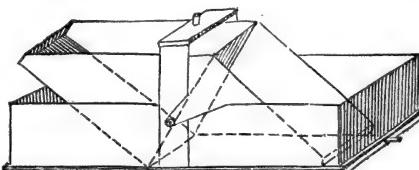
in case of necessity, enabling the vessel to turn far more quickly than is possible with her ordinary steering-gear.

Photographic Washer.—The accompanying drawing illustrates an apparatus devised by M. Gorieux for automatically washing photographic negatives. A trough, the longitudinal section of which is nearly diamond-shaped,



M'ADAMS FINS.

is divided in the middle by a partition, and provided with pivots on its outer sides, which are only a little above the center of gravity. These pivots rest in uprights, so that the double trough can oscillate freely, seesaw-fashion. Immediately over the center of oscillation is a faucet or appliance to deliver water in a small stream. When the trough is tilted



PHOTOGRAPHIC WASHER.

one way, the stream will fall on the upper side of the partition; and, as soon as the weight of water preponderates on that side, the trough will tilt, bringing the other and nearly empty compartment under the faucet. Thus a rocking motion is given to the trough, and kept up as long as the stream flows. The whole affair is set in another trough with a waste

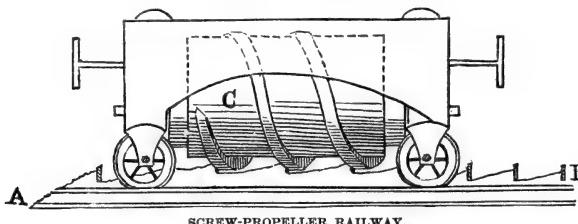
outlet. The negatives laid in the two compartments are always covered by water, which is constantly changed without subjecting the films to objectionably violent action of the water.

Screw-Propeller Railway.—This device, by J. R. Gorman, an English engineer stationed in In-

device, but the lower ends of the copper rods become heated and conduct the heat to the water. In his experiments Mr. Fletcher boiled a pint of water in a studded four-quart kettle in fifty seconds, while more than twice the time was required in a kettle of the unimproved type. Studs of this description have

been used in a crude form in this country and in England for about twenty years, and with marked advantage; but Mr. Fletcher claims that he has discovered the true proportions and secures greater efficiency by using copper instead of iron, as has usually been done with iron boilers.

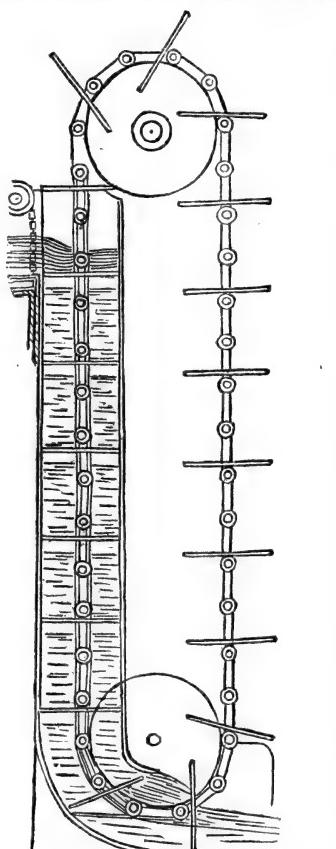
Water-Motor.—The motor illustrated herewith was shown at the Inventions Exhibition in London, and the claim is made that it is more economical



SCREW-PROPELLER RAILWAY.

dia, was designed to overcome a very steep gradient by acting as an assistant to an ordinary engine. The side-elevation only is illustrated herewith, that being sufficient to indicate the principle involved. AB is a heavy rail laid midway between the ordinary rails. It is provided with raised projections like the teeth of a saw. C is an iron cylinder surrounded by screw-threads of wide pitch, and mounted on a suitable carriage. The distance apart of the threads corresponds exactly to that between the elevations on the central rail, and these last have their upper faces adjusted so as to bear upon the threads, and coincide accurately with the pitch of the screw. The problem of causing the cylinder to revolve is a matter of mechanical detail that need not here be entered upon. It is obvious that, when the screw revolves, the carriage must move with tremendous power. The speed is calculated at six miles an hour. The mathematical calculations give one in ten as the gradient that this screw-propeller engine is able, without difficulty, to overcome; but this is probably an underestimate. Its obvious superiority over the ordinary cog arrangements for steep inclines are the smoothness of its action and the safety guaranteed by the fact, that several threads bear continuously upon as many different teeth, so that if one gives way the others are amply able to bear the additional strain.

Water: to heat rapidly.—It has long been known that metallic vessels containing water, even when subjected to the direct action of flames, are surrounded by a jacket of cold air. This may be easily proved by pasting a bit of paper upon the bottom of the vessel. It will often remain unscorched for a long time, even when subjected to a fierce heat. Mr. Thomas Fletcher recently read a paper on the subject before the Gas Institute of Great Britain, in which he showed that, by studding the bottom of the boiler with copper rods or rivets four diameters long projecting below the vessel and upward into the water, the process of heating to the boiling-point was greatly accelerated. The cold zone is not removed by this

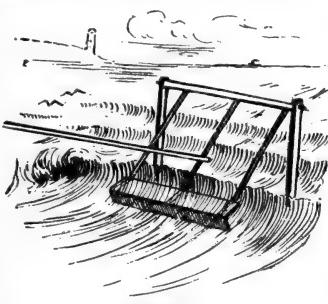


WATER-MOTOR.

of force than any other motor. The best turbines are averaged at about 70 per cent., and undershot water-wheels are as low as

35 per cent. The claim of 98 per cent., made for the balance motor, is, therefore, very high, and, if sustained in practice, should command the attention of those who are interested in water-power. A glance at the diagram will indicate the principle involved. Nearly the whole weight of water is obviously economized, and maintained during the entire descent, some slight waste occurring, of course, from leakage. On a small and imperfect scale, the familiar endless-chain pump illustrates the Seeley-Allin motor. Every one who has used such a pump must have noticed its reversed action when the crank is released, the weight of water in the pipe carrying the chain down with it. If a stream of water were turned into the pipe, the movement of the chain would become constant. In the case of the motor under consideration, the pipe is made as large as the water-supply will warrant, the floats corresponding as closely as possible with its cross-section. The stream fills the alternating sections at the top of the pipe, and the weight of water carries them down as in the case of the chain-pump. Apparently, this system is applicable to almost any conceivable water-power.

Wave-Power, Utilization of.—The enormous waste of mechanical force along the sea-coast and on the shores of all bodies of water large enough for waves, created either by natural causes or by passing steamers, has long tempted inventors. Many devices have been made, some of them very elaborate, but most of them were conceived with an eye to the lifting-power of the waves upon a buoyant body, whereas the tremendous force of a wave is in its momentum. The simplest and most efficient plan that has yet been devised is shown in the illustration. It was invented and constructed by S. B. Palmer, and pumped water

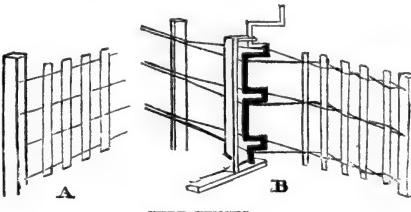


WAVE-POWER.

from the St. Lawrence river to his cottage, through a $\frac{1}{4}$ -inch pipe, 200 feet long, to a tank 40 feet above the water-level. The construction is clear from the illustration. The posts were anchored in crib-work deep enough to allow the in-coming waves to pass freely between them. The plank float suspended at the ends of the arms was six inches wide and six feet long. The rod attached to the middle arm

worked the pump. Very small waves sufficed to keep the arms in effective motion, and larger ones had a correspondingly greater effect. It would seem that, with more scientific methods, this simple device might be developed into a highly efficient and economical engine, not only for pumping water, but possibly for air compression or other mechanical appliances. For tidal waters, it would only be necessary to lengthen the arms and attach the float to them, so that it would rise and fall by its own buoyancy, keeping all the time at or near the surface of the water, and free at any stage of the tide to swing with the motion of the waves.

Wire Fences.—The very general use of wire fences, especially such as are made with barbs, has developed some objections to them. Valuable animals have been thrown down and injured, in some cases fatally, by becoming entangled in the wires. These accidents have led to the adoption of various devices for rendering such fences at once stronger, more easily seen, and



WIRE FENCES.

less likely to cause injury. A fence consisting of three or four single wires may be improved by inserting pickets alternately on one side and the other of the successive wires, as at A. With such a fence the work can be easily done by hand, but the pickets are not held very firmly unless otherwise fastened, or forced closely together. A better fence is made with double instead of single wires, the pickets being placed as at B, and held firmly by the wires alone. Such a fence can not very easily be constructed with the unaided hands, and many devices have been patented to do the work. One of the simplest of these is shown at B. The wires pass through eyes in collars fitted to the upright crank-shaft. The effect of giving the crank a half-turn is to open the wires as shown. Another half-turn changes the position of the wires—those on the left shifting to the right, and *vice versa*. Between the half-turns the pickets are placed in position, and as the fence progresses they are interwoven firmly by the alternating wires. The crank with its standard is moved along whenever necessary. This device is the invention of George L. Sutton, of Platteville, Iowa.

Wire-Painting Machine.—The wide introduction of wire fences, some of which require painting from time to time, has led to the invention by R. Quatermass, of Moline, Kansas, of a double rotary brush, which revolves in a trough partly filled with paint. The wire to

be painted is inserted between the two brushes, and the machine is carried along, the brushes being caused to revolve by the passage of the wire between them. The surplus paint is removed by scrapers attached to the trough, and the painting can be done as rapidly as a man can walk along beside the fence, holding the apparatus in position.

PENNSYLVANIA. State Government.—The following were the State officers during the year: Governor, Robert E. Pattison, Democrat; Lieutenant-Governor, Chauncey F. Black; Secretary of State, William S. Stenger; Treasurer, Matthew S. Quay; Auditor-General, Jerome B. Niles; Secretary of Internal Affairs, J. Simpson Africa; Attorney-General, Louis C. Cassidy; Adjutant-General, Pressly N. Guthrie; Superintendent of Public Instruction, E. E. Higbee; Insurance Commissioner, J. M. Foster. Supreme Court: Chief-Justice, Ulysses Mercur; Justices, Isaac G. Gordon, Edward M. Paxson, John Trunkey, James P. Sterrett, Henry Green, and Silas M. Clark.

Finances.—The report of the State Treasurer shows that the receipts during the year from the ordinary sources were as follow: Corporations, including payments for sale of main line and canal systems, \$4,792,979.56; interest income, \$149,000; licenses of all kinds, \$947,361.20; collateral inheritance-tax, \$662,976.61; personal property, \$674,624.14; miscellaneous, \$293,769.62, making in all, \$7,520,711.13, which, with the balance on hand Dec. 1, 1885, \$1,784,041.86, amount to \$9,304,752.99.

The following were the payments: Departmental expenses (including \$506,329.10 for judiciary, and \$132,749.61 for public printing and supplies), \$1,128,764.50; redemption of loan, interest on loan, premiums, and purchase of United States bonds, \$2,835,544; charitable and penal institutions, \$1,745,972.74; common schools, \$1,150,248.13; National Guard, \$283,456.57; miscellaneous items, \$59,309.48, making the aggregate amount for the year \$7,203,295.42. The receipts for the year were \$659,003 less, and the payments were \$1,311,962.11 less than those of the preceding year.

The indebtedness of the State four years ago was \$20,225,083.28. On Nov. 30, 1886, it was \$17,258,982.28. The reduction in four years has been \$2,966,101. Deducting from the total indebtedness of November last, the bonds and money held by the Commonwealth in the sinking-fund, amounting to \$10,180,746.46, there remains an actual debt of \$7,078,235.82, as against an actual debt four years ago of \$12,232,099.46. This reduction has been made by the cancellation of State loans and purchase of United States bonds to the amount of \$5,153,863.64, averaging over a million and a quarter a year. Meanwhile, all the ordinary expenses of the government have been met, and the Treasurer reports a cash balance in the treasury, Dec. 1, 1886, of \$2,101,457.57.

The amount in the sinking-fund is sufficient to meet the principal of the indebtedness of

the State maturing up to the year 1912, a period of twenty-five years. After the year 1894, there will only be outstanding \$6,861,000 of debt other than the Agricultural College loan of \$500,000, payable in the year 1922. During the past year, \$713,700 of the indebtedness has been redeemed and canceled, and the sum of \$1,544,709.98 has been transferred from the general fund to the sinking-fund.

The benefits of the act of June 5, 1883, providing for the investment of the sinking-fund balances, will readily be appreciated when it is considered that since its passage, a period of three and one half years, purchases of 4-percent United States bonds, representing a value of \$5,305,814.38, have been made for the sinking-fund.

The income of the sinking-fund last year, from this investment, amounted to \$149,000, an amount sufficient to pay the entire annual expenses of the Executive, State, Auditor-General's, Treasury, Secretary of Internal Affairs, and Adjutant-General's Departments, or nearly two thirds of the minimum annual reduction of the principal of the State debt required by the Constitution.

It was thought that the receipts, under the act of June 30, 1885, providing for the revenues of the State by taxation, would be largely in excess of those of prior years. The valuation of property subject to the tax of three mills under this act amounted to \$890,749,556.19, and yielded \$1,172,248.64, subject to credit for the amount of the compensation of examiners and collectors. That the full measure of legislative expectation has not been realized is due to imperfect assessments, refusals of a large number of citizens to report true valuations of their property subject to tax, and to the failure of some county treasurers to make returns of their collections in time for their appearance in last year's accounts. Notwithstanding these facts, and the additional fact that the tax-rate under this act is one mill less than the rate under former acts, the amount realized during the past year was \$500,000 in excess of the annual average of the previous six years. This law does not designate any subjects of taxation not covered by the acts of 1844 and 1846, and subsequent legislation. It only provides a more exact and stringent method for the assessment and collection of taxes. Of the taxes raised throughout the Commonwealth for all purposes, both local and general, real estate contributes four fifths, while its assessed value is only about one sixteenth greater than that of personal property.

Banks.—There are eighty-one banks regularly incorporated by the State, of which more than sixty were chartered by special acts of the Legislature. The annual returns of many of them to the Auditor-General show a small amount of available assets as compared with their liabilities to depositors. Nearly one fifth of them pay no dividends to stockholders.

Of the two hundred and sixty-six private

bankers and banks, the number reporting an annual income exceeding \$10,000 is forty-one; exceeding \$5,000, and under \$10,000, twenty-seven; exceeding \$4,000, and under \$5,000, eleven; exceeding \$3,000, and under \$4,000, nineteen; exceeding \$2,000, and under \$3,000, thirty-two; exceeding \$1,000, and under \$2,000, thirty-eight; exceeding \$500, and under \$1,000, twenty-five; less than \$500, forty-four, and reporting no net earnings or income, twenty-nine. Some of these private banks have large lines of deposits, for which the depositors have no security but the property of the individual bankers, which, in case of disaster, is generally found to be mortgaged for all that it is worth, or to have changed hands clandestinely. The Auditor-General cites one instance in which a private bank, with \$300,000 on deposit, returned an income of \$68 for 1883; for 1884, reported no income at all, and closed its doors with a promise to pay the depositors twenty cents on the dollar. During the past three years, four incorporated banks went into liquidation, and eleven private banks failed, causing a loss to depositors of between \$1,500,000 and \$2,000,000.

Public Charities and Correction.—“While many State institutions,” says the Governor, “are overcrowded, and the provisions in other sections of the Commonwealth for the insane and other unfortunates are shockingly inadequate, the Legislature still persists in making large and annually increasing appropriations for private institutions. This is unwise and wasteful. The State’s own institutions have clearly the first claim upon the State’s bounty. The Eastern Penitentiary is unlawfully overcrowded, there being above 1,100 convicts in 732 cells, It is thus impossible to carry out in eastern Pennsylvania the requirement of the law for the separate confinement of prisoners, and sentences of the courts to that effect are nugatory. The Huntingdon Reformatory should be at once completed and put into operation. The Norristown Insane Asylum is crowded beyond its capacity, and to the detriment of the inmates, while hundreds of needy patients are vainly seeking shelter therein. Institutions in other localities are in a similar condition.”

Regulation of the Liquor Traffic.—On this subject Gov. Pattison, in his message to the Legislature of 1887, says: “There is urgent need for legislation with reference to the traffic in intoxicating liquors. The almost entire absence of restriction upon the sale of alcoholic beverages, especially in the larger cities, is an evil the magnitude of which can not be overestimated. It is not needful that arguments should be adduced to prove that the liquor-traffic is dangerous and harmful to the community; that it is degrading to public morals, hurtful to the health of the people, and detrimental to the peace and good order of society. The demand for a reform in the laws governing the sale of liquor is so wide-spread and emphatic that the Legislature would cease to be

a body representative of the will of the people if it should fail to respond to the call made upon it for a remedy. Ever since the Commonwealth has existed, our laws have regarded the sale of intoxicants as a subject calling for rigid regulation and restraint. Time has demonstrated that the need for such supervision and limitation has increased with population, and with the changing social and physical conditions of the people. That there should exist in the single city of Philadelphia upward of 7,000 licensed drinking-places, and that as many more would, under the law, have to be licensed, as there might be persons desiring to embark in such business, is a startling and unanswerable argument against the laws by which such a state of facts is made possible. The Legislature ought, at once, to revise the entire license system of the State. The cost of license ought to be increased to such a figure as would eradicate the enormous number of small tipping-houses. Some regulation should be enacted limiting the number of licenses that may be granted for taverns within a given area, and for a given number of inhabitants. A petition signed by a reasonable number of the freeholders or residents in the neighborhood, square, or election district in which the tavern is to be located, praying for the issuing of the license, should be required, to authorize the granting of the same, and the license should be limited to the place for which it is first granted or named in the petition, and made void upon removal.”

Divorce.—With reference to divorce, the Governor says: “Your attention is called to the facility with which divorces may, under existing laws, be obtained in this Commonwealth. The records of the courts show an alarming increase in the number of divorcees annually decreed, and our State is fast gaining a discreditable reputation as a *facile forum* for such judicial dissolution of the marriage relation. It is not to be doubted that our courts are often resorted to by persons from other jurisdictions who acquire a temporary residence here for the sole purpose of being relieved of the marital bonds. That State fosters an insidious and blighting evil in which divorces are permitted to be lightly and easily procured. It is suggested that the present laws would be greatly improved by the adoption of the following provisions: 1. That divorce proceedings in all stages shall be conducted in open court. 2. Requiring a residence in the State of two years preceding the commencement of an action for divorce by the party applying therefor. 3. Prohibition of marriage by the guilty party, in a decree of divorce, during the lifetime of the other party. 4. Limiting the jurisdiction of the courts to causes occurring while the parties were *bona fide* domiciled here. 5. Providing that malicious desertion, as a ground of divorce, shall have existed three years prior to the commencement of the action. 6. That cruel and barbarous treatment shall, as a ground

of divorcee, consist of actual violence to the person, endangering the life or affecting the health of the party. 7. By making those matters of practice which are now regulated by rules of court a subject of legislative enactment, and by providing additional safeguards against collusion."

Civil Service.—The Governor again recommends that a law be enacted regulating the appointments in the civil service of the State. "It is not to be doubted," he remarks, "that one of the greatest evils affecting our political life is the practice of making appointments to public employment the spoils of party success. The law should require all officers below a given grade to be appointed because of tested fitness and competency, and they should only be removable for reasons affecting these qualifications."

Soldiers' Orphans' Homes.—During the year, the attention of the Governor was called to certain allegations made by a responsible newspaper, of neglect, inhumanity, and corruption in the care and maintenance of the soldiers' orphans supported in the various orphan-schools at the expense of the State. As the result of an exhaustive examination, he was entirely convinced of the truth of the charges made. "It is impossible, with the evidence procured," he says, "to doubt that for many years the generous bounty of the State has been systematically and deliberately wasted and perverted; the orphans in many cases defrauded of the commonest comforts of life; cruelty and inhumanity of the most repulsive character practiced, and the schools conducted by a combination of mercenary contractors in the most corrupt, unlawful, and heartless manner. To do this the laws governing the institutions have been disregarded and persistently violated; the public officers charged with their superintendence and government have been negligent, incompetent, and studiously derelict; and, while the investigation was being made, either abstained from assistance or embarrassed the discovery of the facts. I, therefore, deemed the first step needed to reform the abuses unearthed to be the discharge of the officials through whose gross incompetence and dereliction they were made possible, and the substitution of more faithful and competent incumbents. The disclosures made by the investigation have compelled a marked improvement in the condition of the children as to their food, clothing, education, and general accommodations, as well as in the sanitary arrangements of the buildings."

Railroad Litigation.—The Attorney-General has instituted two important judicial proceedings to enforce the provisions of the Constitution governing railroad corporations. One of these proceedings was begun for the purpose of preventing the Pennsylvania Railroad from discontinuing the construction of the projected competing line between Harrisburg and Pittsburgh, known as the South Pennsylvania Rail-

road, by the purchase and control of the property and franchises of the latter road and its substantial consolidation with the former, and the control and purchase of the Beech Creek Railroad, an important coal-carrying line. The citizens in the portions of the State benefited by the competition existing or projected, in public meeting and by private communication, protested to the Executive against the wrong and injury to business and trade that would result from the intended suppression of railroad facilities, and petitioned the intervention of the State to prevent this plain violation of the Constitution and its consequent evils. The Attorney-General, though beset with many difficulties in obtaining testimony, succeeded in fully and clearly establishing the facts of the intended, and partially effected, scheme by which the competing lines were to be consolidated with, and controlled by, their rival, the Pennsylvania Railroad; and, upon the facts thus proved, the Court of Dauphin County, where the suit was begun, continued the preliminary injunctions against all the parties to the arrangement, forbidding its consummation. The Supreme Court, to which the proceedings were removed by appeal, affirmed the decision of the lower court. The injunctions are, therefore, now in force, and will so continue until the determination of the litigation.

The other proceeding begun by the Attorney-General is aimed at the combination entered into by the several great trunk-lines and their auxiliaries, and certain coal-mining companies, to control, fix, and raise the rates of transportation of persons and commodities, and the price and amount of coal to be mined and sold. "This combination," argues the Governor, "variously known as the 'Trunk-Line Pool' and the 'Coal Pool,' is a manifest violation of law, as well of the principles of common law as of the plain provisions of the State Constitution. Its purpose is to raise the price and the amount of a necessary of life, and arbitrarily and at the will of the representatives of a few capitalists, and for their profit, to raise the cost of living of the people of a whole State, to interfere with their business and comfort, and to oblige an entire Commonwealth to pay tribute to the cupidity and speculating purposes of a few men. It is time that the people should have a clear declaration from the courts of the legality or illegality of such high-handed proceedings by the creatures of the law; it is time that all citizens should know whether the Constitution, while strong enough to govern a private person, is a nullity as to corporations. If combination by individuals to raise the price of a necessary of life, or restrict its production, is unlawful, and an offense indictable and punishable at common law as a crime, it is time to know from the courts whether the same *acts*, though more injurious and wider spread in their effects when done by corporations, render their perpetrators *amenable* to no law, and can not

bé either prevented or punished. It is to have this question determined that the Attorney-General has begun the proceedings."

Industrial Statistics.—The appended industrial statistics for the year are taken from reports made to the Department of Internal Affairs:

Barrels and Casks.—Establishments 12; employés, 387; wages paid, \$152,462; value of product, \$698,924; annual wages, \$394.

Bessemer Steel.—Converters, 21; employés, 12,309; wages paid, \$5,345,506; value of product, \$23,195,220; average annual wages, \$434.

Blast-Furnaces.—In blast, 107; out of blast, 34; employés, 7,634; decrease, 2,028; wages paid, \$2,988,570; increase, \$1,345,273; value of product, \$22,259,902; average annual wages, \$405.

Bloomeries and Forges.—Establishments, 12; decrease, 8; employés, 236; decrease, 219; wages paid, \$61,708; decrease, \$132,532; value of product, \$317,101; average annual wages, \$261.

Boat-Builders, etc.—Establishments, 6; employés, 90; wages paid, \$22,335; value of product, \$52,125; average annual wages, \$248.

Boilers and General Machinery.—Establishments, 75; employés, 1,639; wages paid, \$761,035; value of product, \$2,362,424; average annual wages, \$465.

Boots and Shoes.—Establishments, 62; employés, 4,547; wages paid, \$1,732,385; value of product, \$5,925,808.

Boxes.—Establishments, 80; employés, 961; wages paid, \$276,781; value of product, \$1,219,030; average annual wages, \$288.

Boxes, Bags, and Envelopes.—Establishments, 31; employés, 1,278; wages paid, \$297,749; value of product, \$969,939; average annual wages, \$233.

Breweries.—Establishments, 239; increase, 53; employés, 2,805; increase, 202; wages paid, \$1,902,500; increase, \$70,688; number of barrels of beer, ale, and porter manufactured, 1,947,871; increase, 209,573; value of product, \$13,184,450; increase, \$966,364; average annual wages, \$607.

Brushes and Brush-Blocks.—Establishments, 18; employés, 160; wages paid, \$57,200; value of product, \$177,175; average annual wages, \$357.

Carriages, Wagons, etc.—Establishments, 94; increase, 32; employés, 1,381; increase, 289; wages paid, \$582,107; increase, \$111,629; value of product, \$1,662,264; increase, \$365,932; average annual wages, \$422.

Cigar-Manufacturers.—Establishments, 119; employés, 2,974; wages paid, \$1,077,732; value of product, \$3,205,450; annual wages, \$362.

Clay and its Products.—Establishments, 68; employés, 2,880; wages paid, \$806,492; value of product, \$2,058,836; annual wages, \$410.

Coffin and Casket Manufacturers.—Establishments, 7; increase, 3; employés, 408; increase, 248; wages paid, \$190,678; increase, \$127,048; value of product, \$640,025; increase, \$466,377; average annual wages, \$467.

Cordage, Rope, Twine, etc.—Establishments, 15; employés, 804; wages paid, \$215,864; value of product, \$2,555,910; average annual wages, \$268.

Crucible Steel.—Establishments, 16; decrease, 6; employés, 4,487; decrease, 564; wages paid, \$2,425,439; decrease, \$454,846; value of product, \$7,737,290; decrease, \$1,843,045; average annual wages, \$540.

Distilled Liquors.—Establishments, 45; decrease, 2; employés, 297; increase, 52; wages paid, \$135,701; increase, \$80,253; barrels of liquor made, 56,044; decrease, 2,500; value of product, \$1,100,436, less Government tax of 90 cents a gallon; decrease, \$70,444; average annual wages, \$456.

Foundry and Machine-Shops.—Establishments, 305; employés, 17,686; wages paid, \$7,807,657; value of product, \$19,420,107; average annual wages, \$440.

Furniture.—Establishments, 73; employés, 3,382; increase, 304; wages paid, \$1,499,199; increase, \$133,384; value of product, \$8,956,733; increase, \$394,648; average annual wages, \$444.

Glass, other than Plate.—Establishments, 41; employés, 7,301; increase, 362; wages paid, \$2,894,581; decrease of \$56,699; value of product, \$5,761,470; annual wages, \$297.

Harness, Trunks, etc.—Establishments, 28; employés, 205; wages paid, \$92,265; value of product, \$360,703; annual wages, \$450.

Hubs, Spokes, Handles, Musical Instruments, Staves, Shoos, Headings, and Wooden-ware.—Establishments, 97; employés, 1,524; wages paid, \$545,205; value of product, \$1,785,782.

Iron-Ore.—Employés, 2,026; decrease, 402; wages paid, \$427,516; decrease, \$195,360; value of product, \$1,641,948; annual wages, \$211; decrease, \$45.

Leather and its Products.—*Morocco Manufacturers.*—Establishments, 37; employés, 2,423; wages paid, \$1,269,195; increase, \$237,121; value of product, \$6,267,788; average annual wages, \$528.

Lumber and its Products.—*Agricultural Implements.*—Establishments, 39; employés, 1,169; wages paid, \$547,874; value of product, \$1,672,018; average annual wages, \$468.

Oil-Refineries.—Number 29; employés, 3,224; wages paid, \$1,372,662; value of product, \$15,061,173; average annual wages, \$425. There was an increase of 1,169,016 barrels of refined oil last year as compared with the preceding year. The exports of refined oil for illuminating purposes were 10,567,653 barrels. The estimated value of all oil exports was \$49,214,285. The average production was 55,000 barrels a day. There are about 17,000 wells in the State, and 4,000 of this number are pumping the bulk of the oil.

Paper and its Products.—*Printing and Publishing.*—Circulation of daily newspapers, 526,438; weekly, 1,169,439; employés, 6,675; wages paid, \$3,262,032; annual wages, \$487.

Planing-Mills.—Establishments, 268; in-

crease, 80; employés, 5,127; increase, 1,134; wages paid, \$2,034,413; increase, \$266,858; value of product, \$7,812,113; increase, \$2,077,872; average annual wages, \$397.

Plate-Glass.—Establishments in the State, 17; employés, 2,174; increase over previous year, 760; amount paid in wages, \$1,194,286; increase, \$346,577; value of the product, \$2,154,710; average annual wages paid, \$550.

Printing, Wall, and Writing-Papers, and Binders' Boards.—Establishments, 63; employés, 2,650; wages paid, \$1,019,576; value of product, \$5,932,702; increase, \$611,539; average annual wages, \$362.

Rolling-Mills.—Establishments, 119; decrease 23; employés, 32,751; decrease, 708; wages paid, \$13,881,848; decrease, \$970,050; average annual wages, \$424.

Saw-mills.—Establishments, 923; increase, 219; employés, 11,138; increase, 3,182; wages paid, \$2,590,520; increase, \$257,765; value of product, \$11,949,122; annual wages, \$233.

Slate.—Establishments, 48; employés, 777; wages paid, \$744,046; value of product, \$1,158,347; average annual wages, \$311.

Street Passenger-Railways.—Companies, 44; employés, 4,398; wages paid, \$2,535,378; average annual wages, \$577.

Tanneries.—Establishments, 303; decrease, 90; employés, 5,090; decrease, 1,022; wages paid, \$2,017,327; decrease, \$398,000; value of product, \$23,988,870; increase, \$913,053; average annual wages, \$359.

Miscellaneous works, manufacturing axes, shovels, spades, saws, brass, bronze, copper, bolts, spikes, nails, bridges, builder's hardware, chairs, elevators, electric supplies, files, rasps, forgings, furnaces, gas and steam fixtures, galvanized ware, guns, rifles, injectors, cocks, safes, pipes, tubes, railings, scales, testing-machines, screws, shaftings, springs, axles, ships, ship-engines, snelting bronze and brass, steel pens, tin cans, boxes, tools, wire goods, and wheelbarrows.—Establishments, 169; employés, 13,101; wages paid, \$5,441,101; value of product, \$24,342,229. The annual wages range from \$240 to \$700. The general average wages is about \$450 a year. The aggregate number of employés in the various manufactories of iron and its products last year was 91,899; average weekly wages paid about \$8, and average number of days employed, 275.

The number of steam-railroad employés is reported at 79,210.

The 98 industries reported show 457,987 employés; wages paid, \$182,989,624; average days employed, 267; average weekly wages, \$7; value of product (including railways), \$537,678,692. The total amount of annual wages was paid to a greater number of employés than has been reported. The number of employés in each industry only represented the average number employed during the year, while the wages paid per annum in each industry was divided among all persons employed, whether for a long or short period.

If full allowance could be made for the proportion of wages paid to persons not retained among the average employed, the *pro rata* share of all would be much less than is shown.

Political.—The Republican State Convention met at Harrisburg on June 30, and nominated the following ticket: For Governor, James A. Beaver; Lieutenant-Governor, William T. Davies; Auditor-General, A. Wilson Norris; Secretary of Internal Affairs, Thomas J. Stewart; Congressman-at-large, Edwin S. Osborne. The following is the platform adopted:

To the end that our industries may be symmetricaly developed, our commerce extended, labor receive just rewards, and capital find remunerative employment, we demand that the system of protection known as the "American system," which has been re-established, built up, and fostered by the Republican party for twenty-five years, be maintained in its integrity. And we demand further that this system, under which the wealth of this country has been more than trebled in a single generation, and which affords a fair and reasonable protection to our agricultural and manufacturing interests, and the industrial classes employed in connection therewith, be also extended to our commerce, so that by the establishment and maintenance of a commercial marine, we may diversify industry, find new channels for the overcrowded ranks of labor, make use of the products of forest, mine, and mill in building our own ships, and provide for the nation's defense as well as the preservation of the nation's honor, by training a body of men for service on the seas, furnishing ships which can be transferred to the service of the nation in case of need, and securing the establishment of ship-yards and machinery which will enable us, as a nation, to construct entirely within ourselves, when necessity requires, a navy which can meet the demands of modern naval warfare.

The products of the farm and dairy should not be lost sight of in the list of American industries to be protected under the American system, and both national and State Legislatures should protect them from dangerous and unjust competition, and from any or all adulterations or counterfeits. Our unqualified hostility is proclaimed to the Morrison bill, not only because it is an avowed step in the direction of free trade, but because in design it is intended to permit raw materials to be imported duty free, and thus it strikes at the prosperity of the farm, the mine, and the workshop.

We deprecate the nefarious work of importing foreign pauper, criminal, and contract labor, or the products of European convict-labor, and demand the passage of a national law summarily prohibiting such importation under any pretext whatever.

Labor and capital are of right, and should be through custom and law, perfectly mutual; and to the end that their mutual relations shall be strengthened, we advocate at the hands of the national Congress and of all State Legislatures the enactment of proper laws, affording facilities for conference and arbitration, based upon the principle that all men are free and equal, and directly recognizing the equality of all the interests involved—the workers, the employers, and the people at large.

That Congress should no longer grant any of the public lands to railroad or other corporations, and should confine the sale of public lands to American citizens. We demand the prohibition of large landed ownership, either by syndicates or alien holders.

We indict the present national Administration for inconsistency in the methods employed to promote promised reforms; indifference to our industrial and commercial interests, and inefficiency through lack of experience and ability to meet any of the grave questions of the day.

Resolved, That the Republicans of Pennsylvania, in convention assembled, place themselves on record, as heretofore, against the disfranchisement of the colored citizen, come from what source it may, whether by tissue-ballots, by a false count, by intimidation, by murder, by amendment of the Constitution, or by congressional action.

Resolved, That the Republicans of Pennsylvania demand of Congress that the limitation of arrears of pensions bill, whereby unjust discrimination was made against applicants for pensions after June 30, 1880, should be repealed, and all soldiers and sailors entitled to pensions should share equally and justly in the payment of claims by the Government.

We approve of the bill which has received the almost unanimous vote of the United States Senate, and is now pending in the House, regulating commerce between the States, and call upon the Legislature to adopt a like measure to regulate and supervise freight-charges within the State.

Whereas, There is an evident desire on the part of a large number of intelligent and respectable citizens of Pennsylvania to amend the Constitution by inserting a clause prohibiting the manufacture and sale of intoxicating drinks as a beverage within the limits of this Commonwealth : Therefore,

Resolved, That it is the opinion and judgment of this convention that the Legislature of the State should at once adopt measures providing for the submission of this question to a vote of the people, in accordance with the true spirit of our free institutions.

On August 18 the Democratic State Convention met in the same city, and made the following nominations: For Governor, Chauncey F. Black; Lieutenant-Governor, R. Bruce Ricketts; Auditor-General, William J. Brennan; Secretary of Internal Affairs, J. Simpson Africa; Congressman-at-large, Maxwell Stevenson. The following is the platform adopted:

1. The Democracy in Pennsylvania, in convention assembled, do declare that we reaffirm the Chicago platform of 1884, approved by the people in the election of Cleveland and Hendricks; that we favor a just and fair revision of the revenue laws in accordance with the letter and spirit of that declaration of Democratic principles, and in such revision care should be taken that such changes shall be made in a spirit of fairness to all interests, and without depriving American labor of the ability to successfully compete with foreign labor, and without imposing lower rates of duty than will be ample to cover any increased cost of production which may exist in consequence of the higher rate of wages prevailing in this community.

2. That we indorse the Democratic reform Administration of President Cleveland. It has given confidence to the business industries of the country, purged the departments of corruption, checked extravagance, discouraged class legislation and monopolies, elevated the civil service from the partisan debasement to which it had been reduced by previous Administrations, and has made the people of the United States feel an assured confidence in the perpetuity and safety of the nation.

3. That we indorse the Democratic reform administration of Gov. Pattison. It has rescued the Commonwealth from flagrant corruption, vigilantly guarded the public treasury, scrupulously protected the rights of the people, economically administered the Government, earnestly endeavored to enforce every provision of the Constitution, reformed the management of State institutions, exposed and corrected abuse in the Soldiers' Orphans' schools, redeemed the Pardon Board from scandals, and executed all promises made by the candidates and party in 1882.

4. That we sympathize with labor in its efforts to make industrial and moral worth, not money, the true standard of individual and national greatness, and to secure to the workers the full enjoyment of the wealth

they create and sufficient leisure in which to develop their intellectual, moral, and social faculties ; to this end we desire the enlargement of the Bureau of Statistics, the abrogation of all laws that do not bear equally upon capital and labor, and the prevention of the hiring out of convict-labor ; the adoption of measures providing for the health, and safety, and indemnification of injuries to those engaged in mining, manufacturing, and building industries ; the enactment of laws by which labor organizations may be incorporated and arbitration extended and enforced, and a suitable apprenticeship act for the purpose of creating a better class of artisans and mechanics ; the prohibition of the employment of children under fourteen years of age in workshops, mines, and factories ; the strict and exact enforcement of the laws relating to pluck-me-stores and store-orders, and those relating to the accounting of industrial works ; the appointment of inspectors to carry out these provisions, and a rigid enforcement of existing immigration laws, and exclude pauper, contract, and assisted immigration.

5. That we pledge ourselves to the enforcement of Articles XVI and XVII of the State Constitution, relative to private corporations, railroads, and canals, by appropriate legislation.

6. That the State and local tax laws should be so altered and amended as to relieve farms and real estate from the present unfair and large proportion of taxation, and equalize the same, so that personal estate would be made to pay its just part.

The Prohibition State Convention met on September 18, also at Harrisburg, and nominated: For Governor, Charles S. Wolfe; Lieutenant-Governor, A. A. Barker; Auditor-General, Charles L. Hawley; Secretary of Internal Affairs, John N. Emery; Congressman-at-large, John M. Palmer (colored). Following are the essential portions of the platform :

That the administration of Government and the execution of the laws is through officers chosen by party, and party must be held responsible for unfaithfulness in the discharge of its duties ; therefore we arraign the Republican and Democratic parties as having been untrue to the people on the liquor question, false to proclaimed principles of "equal justice to all and special favors to none," and of protection to the weak and dependent ; callous to the wrongs which the liquor-trade inflicts upon wives and children, upon industry, trade, and domestic happiness, thrift and prosperity ; and conspirators against the people by the repeal of the local-option acts, against their will and protest, and by three successive Legislatures elected by them rejecting the petitions of thousands of the best citizens of the Commonwealth, asking for the submission to popular vote of an amendment to the Constitution forbidding the drink-trade. The Prohibition party pledges its co-operation and influence in the prosecution of whatever measures, and to whatever degree, our mothers, wives, and sisters may deem needful for protection of home from the drink-curse, including civil equality under the law, and their counsel and labor in our party work of "down with the saloon and up with the home" is cordially invited and welcomed.

The Prohibition party is the only party which gives the citizens the opportunity of voting for public officers not in complicity with the liquor business.

That corporations are created to subserve the public welfare, and should be held to a strict compliance with the objects of their creation and its subjection to the law. That corporation monopolists, office-seeking and office-holding monopolists, with the liquor-trading monopolists, now form a triple alliance in the Republican and Democratic parties for influencing the executive, legislative, and judicial branches of the government.

That we favor the enforcement by law of section 7 of

Article XVII of our State Constitution which provides against "discrimination in charges or facilities for transportation by abatement, drawback, or otherwise," and against "any preference in furnishing cars or motive power" by transportation companies of the State.

That imported contract and pauper labor should be forbidden.

American labor, skill, and capital employed in agriculture, mining, manufactures, commerce, and the mechanic arts should have first consideration and protection against the competition of foreign labor and capital in our tariff and other laws.

That we believe in the Christian Sabbath as an indispensable safeguard of our cherished institutions, justified as well by nature and reason as by religious precept. We demand the strict enforcement of all laws against its violation, and hold in abhorrence as inimical to the best interests of the people the so-called "Continental Sunday."

That our present heterogeneous laws regulating marriage and divorce in the social state are a shame to our civilization, and we demand a national law conformable to the divine law and uniform for all the States.

The State Liquor League met in Pittsburgh on July 13, and put forth a platform of which the following are the essential portions:

The State Liquor League of Pennsylvania reaffirms the principles enumerated at the Reading Convention in December, 1885, and hereby declares its unfaltering and unwavering faith in the principles which gives it its existence, viz.: The elevation and protection of those lawfully engaged in the liquor-traffic.

To that end it announces its purposes to aid in the just administration of the present laws governing the sale of liquors, and to endeavor by honorable means to have the said laws amended wherever the same fail to give the proper guarantees for vested interests or afford opportunities for the exercise of an arbitrary and uncontrolled discretion upon the part of the officials clothed with power to administer the same. The League is opposed to an amendment of the State Constitution prohibiting the manufacturing and sale of liquors, as being an attempt to destroy the sacred rights of property without compensation, and a direct attack upon the personal liberty of every citizen as well as a violation of all that is implied by the letter and spirit of the State Constitution and the bill of rights contained therein.

Zealous advocates of the liquor cause close their eyes to the fact that prohibition is a synonym with failure to prohibit. The League asks for an honest law, honestly administered, and not one that will contain within its limits the seed of hypocrisy. A license law that is not uniform in its application to every county in the Commonwealth offends against a vital requirement of the Constitution. The State Liquor League of Pennsylvania employs no threats and formulates no demands. It submits its principles to the citizens of the Commonwealth of Pennsylvania and asks for a calm, conservative, decisive, dispassionate discussion thereon. It asks for rights and guarantees that are as freely accorded to every person in the community not engaged in the liquor-traffic as they are strictly withheld from a class of citizens, the large majority of whom afford, in a lawful and orderly manner, shelter and entertainment to the wayfarer or gratify a desire on the part of mankind which is coeval with creation, and which will only expire with the last man.

The following were the National Greenback candidates: For Governor, R. J. Houston; Lieutenant-Governor, John Parker; Auditor-General, Daniel S. Early; Secretary of Internal Affairs, Thomas St. C. Thompson; Congressman-at-large, C. D. Thompson.

On November 2 the Republican ticket was

elected. The following was the vote for Governor: Republican, 412,285; Democratic, 369,634; Prohibition, 32,458; Greenback, 4,885; scattering, 56.

The Democrats elected eight Congressmen (Third, Eighth, Tenth, Eleventh, Twelfth, Nineteenth, Twenty-sixth, and Twenty-seventh Districts). Republicans were elected in the other nineteen districts, the member from the Thirteenth District receiving the support of the Greenbackers. The Legislature of 1887 consists of 34 Republicans and 16 Democrats in the Senate, and 133 Republicans, 67 Democrats, and 1 Greenbacker in the House.

PERU, a republic in South America. (For details relating to area, population, etc., see "Annual Cyclopaedia" for 1883.)

Government.—The President, since June 2, 1886, is Gen. Avelino Cáceres. The Cabinet was composed of the following ministers: President of the Council and Minister of Finance and Commerce, Señor Aranibar; Foreign Affairs, Señor Ribeyro; Interior and Public Works, Señor Velarde; Justice, Señor Villaran; and War, Col. Borgoño. The United States Minister at Lima is Charles W. Buck; the Peruvian Minister and Consul-General at New York is Señor J. C. Tracy.

Army and Navy.—By decree of July 23, the effective force of the army was fixed at 3,500 men.

The navy consists of 18 vessels, with engines of 3,396 horse-power, and 66 guns, there being four ironclads, of together 550 horse-power, and mounting jointly 22 guns, one ram of 300 horse-power and 5 guns, and 2 monitor rams, each of 230 horse-power and 2 guns.

Education.—The Indians, comprising nearly five sixths of the people, are to be educated and brought to know that their rights and privileges are the same as those of their white neighbors. The taxes collected from them are to be expended in maintaining schools and missions among them. The severest penalties permissible by law are to be inflicted upon those who in any manner seek to injure or molest the Indians in their persons or property. Before President Cáceres's inauguration he was visited by Pedro Atusparia, chief of the powerful tribe of Huaraz Indians, who, while making his submission, begged him to cause Indians to be educated, to reduce taxes to a point compatible with their means, adopting for this purpose the basis of the census. President Cáceres promised all he wished, and took under his personal charge the education of the chief's son. Great political importance was attributed to this interview, a formidable rising among the Huaraz Indians having taken place during the administration of Cáceres's predecessor.

The Jesuits.—By a special law enacted in 1855, the Society of Jesus was prohibited from having establishments or residing as a community or individually within the limits of the republic. Then the Constitution of 1860 was

adopted, in which are certain clauses held to abolish the prohibition alluded to, and this Constitution is still in force. In 1879 several Jesuits, under the jurisdiction of the Spanish province of Toledo, returned to Peru, and the Government permitted them to take up their quarters in the convent of San Pedro at Lima, which they had founded and built nearly two centuries ago. They were to pay rent, however, and to educate at Government expense a certain number of youth from the outlying departments. The famous Church of San Pedro was given over to them; and they established missions, and did good work. But, unfortunately, an opportunity was given for complaint. One of the fathers published a text-book for the use of his pupils, in the "History of Peru," in which some of the patriot leaders during the war of independence were handled severely, and the newspapers declaimed against the danger of diminishing the youthful admiration for the heroes of that sturdy fight for independence. One question led to another, and public meetings were called by the students of the university. Demands were made upon the Government that the law of 1855 be enforced, and the members of the society be again banished. There was division of popular sentiment, and the Government determined to take a middle course. It was decreed that the national property occupied by the Jesuits as their college should be immediately vacated and returned to the state, and that, as no permission had been given to the society to return to Peru, they can not live in community, or rather practice as a community, without such permission. While this did not deport them, it destroyed their usefulness.

Finance.—Under the Iglesias administration, the income from Oct. 23, 1882, till Dec. 31, 1884, had been \$7,003,361 in silver coin, and \$242,958 in paper money, and the outlay \$7,059,082 in the former and \$905,907 in paper, the income from duties being \$5,154,830 in silver, and the outlays embracing \$8,124,024 in silver and \$532,175 in paper for war; \$1,824,459 silver for collecting duties, etc.; \$1,773,965 silver and \$336,774 paper for carrying on the Government and paying the police; while for Justice, Public Worship, Education, and Foreign Representation only \$500,000 in silver were spent.

Prior to the war with Chili, the income of Peru used to be \$16,000,000 per annum; but the loss of the guano and nitrate of soda deposits has reduced the income of the nation to what it is at present.

The amount of money derived for the benefit of Peruvian bondholders from guano-sales by the Chilian Government was \$883,405 in 1885, but was not expected to exceed \$600,000 in 1886, the Chilian financial agent in Paris not having been able to sell over 100,000 tons, to be delivered in May, 1887. Assuming the annual average of 100,000 tons to be kept up, it will be seven years longer ere the net proceeds

of 50 per cent. of 1,000,000 tons will cover the bondholders of Peru entitled to a share therein. Out of the bonded debt of Peru of £31,000,000, £26,000,000 are held in England, and the bulk of the remaining £5,000,000 in France and Holland.

A decree dated March 1, 1886, ordered duties payable at Callao to be defrayed either in silver dollars or bills on banks in Callao and London.

In consequence of the depreciation and fluctuations of the silver currency in circulation in Peru, it has been decided to use the American gold dollar as the basis of all monetary transactions, using the silver dollar at a value of eighty cents gold for all fractions under a quarter of an eagle.

The tax of two reals per mark on the silver taken from the Cerro de Pasco mines was removed on Dec. 29, 1885.

On June 2, 1885, the Government of Miguel Iglesias had decreed that the \$5 so-called "Inca notes" and \$500 treasury notes should be taken in full payment of the 10 per cent. extra duty, and for 20 per cent. of the duties to be collected at Mollendo. The decree was revoked under date of Feb. 26, 1886.

Mining.—An American enterprise has been attracting a good deal of attention, and people that hope for the speedy rehabilitation of Peru have great anticipations of the work to be done by William H. Cilley, managing director of the Oroya Railway and Cerro de Pasco Mining Company, and a commission of distinguished mining engineers and experts sent out by the syndicate at New York. The object of the commission is to examine and report upon the condition of the mining district of Cerro de Pasco and the quality of the silver ores contained therein, in the interest of the capitalists that obtained from the Iglesias Government the concession for extending the Oroya Railway to the Cerro de Pasco, and the development of the silver-mines at that place. This project, now apparently on the way to realization, is looked upon at Lima as the most important that could be originated as regards the benefits to be derived from it by the country at large. The immense mineral and agricultural wealth of the interior, now sparsely brought to the coast, and but imperfectly developed, owing to the lack of cheap transportation and energetic enterprise, can be made productive, and give to Peru a means of commercial exchange abroad, while at home it will afford an opportunity for labor and intelligence that has hitherto been wanting.

Consular Invoices.—The Government, under date of May 18, 1886, decreed that all invoices of goods shipped to Peru must be certified by Peruvian consuls abroad, and that they must be in conformity with the vessel's manifest; if not, an extra duty of 25 per cent. will be levied; and if the goods are duty-free, they will have to pay a 25 per cent. duty; the captain of the vessel to be fined from \$100 to \$1,000, unless he can prove that the non-existence of the

documents was not his fault—i. e., if the vessel has been plundered by pirates, or damaged by fire, or he had to seek a harbor in distress.

Cotton.—Cotton-planters have petitioned Congress for the purpose of having the export duty on cotton removed, so as to enable them to compete abroad with the cotton produced elsewhere.

The Coca-Leaf.—This is the dried leaf of a shrub that grows wild on the mountains of Peru and Bolivia. The shrub is also cultivated by those who know its uses and who reside on the elevated districts of those countries—from 2,000 to 5,000 feet above sea-level. The Indians of Peru many years ago ascertained the stimulating properties of this shrub, the leaves of which they would dry and chew in about the same way that many in this country chew tobacco. As the leaf has a bitter taste, the Indians mix it with quicklime to improve the flavor. The aroma of the plant is penetrating, and when the leaves are drying or dried appears to have a powerful effect on the senses. Its greatest value has been developed within the past thirty years. In 1853, Wackenroder and Johnson made some attempts to extract its medicinal and chemical properties, but without avail, and later Gadeke succeeded in preparing an extract containing sublimable crystalline needles. But it was not until 1860 that Niemann succeeded in isolating an alkaloid, which received the name of cocaine, which is a local anaesthetic. Lossen also succeeded in obtaining another alkaloid, which he named hygrin. The coca-leaves, when macerated and treated with pure wine, produce one of the finest stimulants for persons whose nervous system has become exhausted by excessive mental work or emotional excitement.

Commerce.—The American trade with Peru has been as follows:

FISCAL YEAR.	Import from Peru.	Domestic export to Peru.
1886	\$963,480	\$798,577
1885	1,764,890	735,979
1884	2,077,645	1,048,902
1883	2,526,918	437,360

The exports to Peru from England in 1884 were valued at \$5,259,976; from France, \$2,-039,089; and from Germany, \$301,070.

Proposed Mineral Exhibition.—It has been decided to open on Oct. 1, 1887, in the machinery-buildings and gardens of the Lima Exhibition, under the auspices of the Government, and with the co-operation of the Administrative Society of the Lima Exhibition and the Special School of Mines, a Mineral Exhibition, the principal object of which is to make known to the world the great mineralogical wealth of Peru. All objects intended for the exhibition will be exempt from duties.

The Muelle-Darsena Contract.—The difference of opinion between the two Chambers of the Peruvian Congress regarding the Muelle-Darsena (of Callao) contract, made during the Iglesias

administration, was satisfactorily arranged on October 15. The deputies who voted that Congress was entitled to declare the contract null and void, and the senators who voted that the matter should be submitted to the courts for decision, met in joint session and passed a bill declaring that the contract concedes privileges for a longer period than authorized by the laws of the country; that to be valid, it requires the approval of Congress; and, that body, considering the contract to be injurious to commerce, declares it null and void. The bill also authorized the executive to appoint a commission to investigate as to whether the company has faithfully fulfilled its obligations undertaken under the contract of Aug. 16, 1869.

Railroads.—The syndicate formed in New York for the purchase of the Andes Railroad has renewed all the discussion in regard to the peculiar features of this road. The purchase was made about two years ago from the Government of Peru. The railroad was begun by Mr. Meigs in 1870. Starting from the sea, it ascends the narrow valley of the once sacred Rimac, rising 5,600 feet in the first 46 miles to a beautiful valley, where the people of Lima have found an attractive summer resort; then it follows a winding, giddy pathway along the edge of precipices and over bridges that seem suspended in the air, tunnels the Andes at an altitude of 15,645 feet—the most elevated spot in the world where a piston-rod is moved by steam—and ends at Oroya, 12,178 feet above the sea. Between the coast and the summit there is not an inch of down grade, and the track has been forced through the mountains by a series of 63 tunnels, whose aggregate length is 21,000 feet. The great tunnel of Galeria, by which the pinnacle of the Andes is pierced, will be, when completed, 3,800 feet long, and will be the highest elevation on the earth's surface where any such work has been undertaken. Besides boring the mountains of granite and blasting the clefts along the sides to rest the track upon, steep cuttings and superb bridges, the system of reverse tangents had to be adopted in cañons that were too narrow for a curve. So the track zigzags up the mountain-side, on the switch and back-up principle, the trains taking one leap forward, and after being switched on to another track another leap backward, until the summit is won; so that often there are four and five lines of track parallel to one another, one above another, on the mountain-side.

It is estimated that the construction of the road cost Peru 7,000 lives from pestilence and accident. Land-slides, falling boulders, premature explosions, *sorrache*—a disease that attacks those who are not accustomed to the raw air of the great altitudes—fevers caused by deposits of rotten granite, and other causes, resulted in a frightful mortality during the seven years the road was under construction; but it was pushed on until the funds gave out.

The scenic grandeur of the Andes is presented nowhere more impressively than along the cañon of the Rimac river, which this railroad follows. The mountains are entirely bare of vegetation, and are simply monstrous masses of rocks, torn and twisted, rent and shattered by the tremendous volcanic upheavals which often occur here. At the bottom of the cañon, and where it occasionally spreads out into a valley of minute dimensions, are the remains of towns and cities, whose origin is hidden in the mists of fable. The completion of the line to the mining regions will cost \$10,000,000.

The Government granted a concession for fifty years to Medardo Cornejo for the reconstruction of the railroad line between Pacocha and Moquegua.

PHARMACY. The development of this art advances steadily, and no important event has occurred during the year to impede its progress. Higher education, stricter laws, increased scientific thought, and improved methods of conducting business, are evidences of a continued improvement in all directions.

Colleges.—The Buffalo College of Pharmacy was established as a department of the University of Buffalo, and was inaugurated in September. The Illinois College of Pharmacy opened in October, and is connected with the Northwestern University in Chicago. The Cincinnati College of Pharmacy became a department of the University of Cincinnati during the year. The New York Legislature granted a charter for a college of pharmacy in Brooklyn, but as yet this institution has not come into active existence. Degrees in pharmacy were granted at the Tulane University, in New Orleans, at its last commencement, and efforts are being made to found a New Orleans college of pharmacy. The Pennsylvania College of Pharmacy, incorporated in 1871, began its first session in the autumn. A recent compilation of the attendance of students at the colleges of pharmacy throughout the country, during the year 1886-'87, shows a total of 2,177, including 15 women.

Legislation.—Laws regulating the practice of pharmacy in Virginia and Wyoming came into active operation on Jan. 1, 1886; also amendments to the laws already existing in New Jersey, Iowa, Kings and Erie Counties, in New York, were enacted during the year. Legal measures compelling the use of scarlet labels with white letters, together with a scarlet wrapper for container, or of a scarlet wrapper alone for preparations of morphine, were passed by the Legislatures of Florida, Georgia, Kentucky, New Jersey, New York, Ohio, Virginia, and Wyoming.

Associations.—The thirty-fourth annual meeting of the American Pharmaceutical Association was held in Providence, R. I., beginning on September 7. Nearly 200 members were present, and of the business transacted the most important was the consideration of a "National Formulary." An additional year

was given to the committee to be devoted to the further critical examination of the formulas presented, as well as of those contained, in other collections or drafts which have not yet been considered for want of time or which may hereafter be presented by other bodies. Charles W. Tufts, of New Hampshire, was elected president, and John M. Maisch, of Pennsylvania, continued as permanent secretary. The Association adjourned on September 9, to meet in Cincinnati, O., on the first Monday in September next. Of State organizations, the Tennessee Druggists' Association and the Dakota Pharmaceutical Association were formed during August.

Trade Organizations.—The National Retail Druggists' Association held its fourth annual meeting in Providence, R. I., on September 6. This organization, originally formed for the purpose of protecting retail druggists by a union to uphold prices under various "plans," was dissolved, and a reorganization on the basis of State and local delegates effected under a similar name, whose objects shall be to bind together the different pharmaceutical bodies of the United States for the purpose of adopting and acting upon all questions affecting pharmacists and druggists throughout the Union, from a professional, legal, and commercial standpoint. Albert H. Hollister, of Wisconsin, was chosen president, and Louis E. Nicot, of New York, secretary. The eleventh annual meeting of the Wholesale Druggists' Association convened in Minneapolis, Minn., on September 27. During its sessions valuable reports pertaining to the progress of commercial affairs were submitted by committees, and their recommendations adopted by the Association at large after ample discussion. It was found that the "contract plan" existing between the manufacturers and jobbers had grown steadily in favor and given much satisfaction. The passage of an interstate commerce bill by Congress was urged, and resolutions in its favor were adopted; also Congress was requested to enact a law preventing the collection of fees from commercial travelers passing through States and Territories requiring licenses, a practice which is unconstitutional, according to the decision of the U. S. Supreme Court. The most important measure adopted was the appointment of a committee to organize a mutual fire-insurance company to insure the wholesale druggists of the United States against loss and damage by fire. Daniel R. Noyes, of Minnesota, was chosen president, and A. B. Merriam, of the same State, secretary. The next meeting will be held in Boston, Mass., on the third Tuesday in August.

Trade Relations.—All measures for the better protection of prices among retailers have been discontinued, and at present only the "contract plan" between the manufacturers and jobbers remains in force. All efforts to evade the enforcement of this plan have failed, and it is now carried on more effectually than ever.

Literature.—The books of the year include "Manual of Practical Pharmaceutical Assaying," by Dr. A. B. Lyons (Detroit); "Chemical Lecture Notes," by H. M. Whelpley (St. Louis); "Compend of Pharmacy," by F. E. Stewart (Philadelphia); and new editions of Beasley's "Druggists' General Receipt-Book," and Beasley's "Pocket Formulary and Synopsis of the British and Foreign Pharmacopeias" (Philadelphia). In January, "The Chicago Pharmacist" was discontinued, being merged into "The Western Druggist," of Chicago. "The American Drug-Trade" is the name of a journal started in Chicago with the beginning of the year.

PHYSIOLOGY. In a recent discussion of the true aim of physiology, Prof. W. Preyer insists upon function as the paramount object of study. Physiological inquiry, he says, must attach more importance to the conception of evolution. Morphology has gained so much from applying the method of evolution in all its departments, that it is surprising that in physiology, or the science of the functions, it has not been applied at all, or only occasionally and reluctantly. The neglect is due partly to the erroneous opinion that not the physiological function, but only its substratum, the bodily organ, is capable of evolution. It is, however, function that determines the final form during phylogenetic evolution, and with its appearance begins the differentiation of the substratum of primitive beings. It is not the organ from which function derives its origin, but just the reverse. The functions create their organs, or, to use a better definition, necessity determines the organic form, which hence becomes hereditary, and ultimately in the embryo of the higher animals in structure, at least, precedes function. This is illustrated in an experiment on the embryo of the land-salamander, which, when many months previous to the normal time of its entry into the world, if taken out of the egg and kept in water well supplied with oxygen and amply fed with small living water-animals, will undergo a change in its organism. It has to inhale the oxygen dissolved in the water, not that of the atmosphere, like its parents breathing with lungs. Its lungs, therefore, remain undeveloped, but by way of compensation strong gills appear at each side of the head. The originally very feeble function of respiration through gills, in conformity with the increased demands of the growing body, creates a new organ, or calls forth one possessed by its remote ancestors. The animal, moreover, feels the necessity to swim, not to creep, like its terrestrial parents. Its four extremities, therefore, become mere rudimentary appendages, while, on the other hand, a vigorous rudder-tail develops. The function of swimming calls forth fins, new organs which the parents lack. Thus a substantially new animal is produced which elsewhere does not exist, and which shows how, through the development of new functions,

new organs are formed, or, as it were, resuscitated. The principle applies not only to particular cases with artificially created conditions, but to all functions. All of them precede the organs devoted to their exclusive service. All of them originate through competition for the necessities of life. At first a simple want is easily satisfied by simple means, but gradually the organism is called upon to meet numerous demands requiring complex contrivances through differentiation. "No organic structure develops without having an activity, a necessity to intensify this activity for its cause. The cause of this increase in activity or differentiation is simply functional evolution. It is the principle of all organic growth, of all morphological evolution, and, wherever it decreases or ceases, the latter at once retrogrades. Without function, no organic evolution; increase of function, organic differentiation; cessation of function, organic retrogression."

Nervous System.—Dr. von Monakow has communicated to the Physiological Society of Berlin an account of his anatomical investigations of the brain, which related to the central origin of the optic nerve. He had enucleated on one or both sides the bulbus in young rabbits and cats, and, after an interval of some months, had examined the changes which resulted. In each case he found regular ascending atrophy, capable of being traced up to the origin of the nerves. By this means he had been able to recognize as central original spots of the nervi optici, the corpus geniculatum externum, the pulvinar, and the anterior corpora quadrigemina. The corpus geniculatum and the pulvinar consisted of large multipolar cells, between which lay a gray medullary substance, which, on being colored with carmine, showed a particularly strong tinge. After the enucleation, atrophy of the gray medullary substance was observed in both, while the cells remained altogether intact. On coloring with carmine, the somewhat shrunken organs appeared much paler than in the normal state. In the corpora quadrigemina five different layers of small and large cells and fibrous bands were distinguished. Of these the three innermost layers lying toward the ventricle remained intact, while the two external cellular layers were atrophied or were altogether wanting. The degeneration and disturbance of growth after enucleation of the bulbus had not, however, extended beyond these primary centers of the optic nerve. Dr. von Monakow had, furthermore, removed particular parts of the cerebral cortex lying within Munk's sphere of vision, and the degeneration and atrophy which succeeded this injury, and, extended peripherally, could be followed through Gratiolet's fibers on to the three centers of optic nerves above mentioned, the corpus geniculatum externum, the pulvinar, and the anterior corpora quadrigemina, and beyond these centers as far as the tractus opticus and the optic nerves. It

was an interesting fact that, after the injury of the cerebral cortex, the degeneration of the three centers of optic nerves was of a different character from that which set in after the peripheric enucleation. The corpus geniculatum and the pulvinar were now altered in such a manner that it was mainly the cells which either showed degeneration or were entirely wanting. In the anterior corpora quadrigemina, likewise, it was other layers—namely, the third medullary layer and the larger cells—which were overtaken by degeneration. The author had had the opportunity, in making a dissection, of substantiating on a man, who had long been suffering from a diseased retina, that the degeneration in the case of man propagated itself centrally—toward the three centers before mentioned—just as much as in the case of the rabbits operated on.

Ph. Rey has communicated the following from materials left by him, as the results of 347 observations collected by Broca on the weight of the three cerebral regions, frontal lobes, occipital lobes, and parietal regions: First, the relation of these different parts to the brain is, in men: Frontal lobes, 1:2.33; occipital lobes, 1:10.66; parieto-temporal regions, 1:2.12. In women: Frontal lobes, 1:2.32; occipital lobes, 1:9.88; parieto-temporal regions, 1:2.13. Secondly, in man the left frontal lobe is heavier than the right, but in the occipital lobes and in the temporal regions the excess is on the right side. Thirdly, in old people loss of weight is more perceptible in the parieto-temporal regions than in the frontal and occipital lobes; that is particularly the case in women. Hence it is that if in adult life men have proportionately larger frontal lobes, that ratio is attained in women in old age. Fourthly, in men the frontal lobes attain their greatest weight at thirty-five years, but the parieto-temporal regions acquire it at twenty-five. The anterior lobes of women present little difference between twenty-five and thirty-five years.

W. H. Gaskell shows, from experiments on the dog, that the nerves which supply the muscles of the vascular and visceral systems all have certain common histological characteristics, while nerves of the same function possess in addition a well-defined anatomical course. They are all composed of medullated fibers of the finest size, which lose their medulla and become non-medullated before they reach their destination. One of the functions of the ganglia with which they are in connection is to effect this conversion of medullated into non-medullated fibers. A beginning has been made in defining the anatomical course of these nerves by tracing for each kind of nerve the characteristic small medullated fibers from the central nervous system into the special group of ganglia in which the loss of the medulla takes place. Although this anatomical course can not at present be defined in every

case to its fullest extent, sufficient evidence has been given to warrant the conclusion that the vascular and visceral muscles are throughout supplied by two kinds of nerve-fibers of opposite functions, the one motor and the other inhibitory; and that these two kinds of nerve-fibers reach the muscle by separate distinct anatomical paths, the difference of path consisting in a difference of origin from the central nervous system combined with the fact that inhibitory nerves lose their medulla in more distinct ganglia than the corresponding motor nerves. In addition, the ganglia are shown to possess a nutritive power over the nerves which pass from them to the periphery. A third function of the ganglia to be noticed is the increase in the number of nerve-fibers which occurs simultaneously with the loss of the medulla. The fact that involuntary muscles are supplied with two efferent nerves, which differ not only in function but also in their anatomical course, leads to the conception that a similar double nerve exists for all tissues. The sphincter muscle of the iris also affords an example of a muscular structure supplied by two nerves of opposite character, the one motor and the other inhibitory. The experiments show that the inhibitory nerves are of fundamental importance in the economy of the body as the motor nerves. No evidence exists that the same nerve-fiber is sometimes capable of acting as a motor nerve, sometimes as a nerve of inhibition, but on the contrary the latter nerves form a separate and complete nervous system subject to as definite anatomical and histological laws as the former; the complete investigation of these laws is one of the most important problems of physiology, and is absolutely necessary before we can attempt to understand the part played by the nervous system in the regulation of the different vital processes.

H. P. Bowditch and J. W. Warren, regarding the methods of investigation of the vaso-motor nerves of the limbs by observations of the temperature of the skin as not likely to yield wholly satisfactory results, devised and applied a method in which the vascular changes are directly registered by means of a plethysmograph. The leg of the animal was, in this apparatus, placed in a leg-holder, in which its dilatations and contractions were exactly measured. Under electrical stimulation changes occurred in the size of the leg in nearly all cases of one of three sorts: 1. A prompt contraction; 2. A prompt contraction, followed by a dilatation; 3. A slow dilatation. Occasionally a dilatation, followed by a contraction, was observed, but these cases were so irregular in their appearance and so few in comparison with the total number of observations that they were left out of account in the analysis of the results. The results of 990 observations on 70 cats showed that stimulations of every rate and intensity may give any one of the three results, except that simple dilatations were never

observed to follow rapid stimulations of medium and strong intensity. In a large majority of cases both vaso-constrictor and vaso-dilator fibers were stimulated by the application of electricity to the sciatic nerve. The vaso-dilator nerves are more irritable, with a slow, and the vaso-constrictor nerves with a rapid, rate of stimulation. With each intensity of stimulation the average result shows, with an increasing rate of stimulation, a greater tendency to contraction. With a slow rate of stimulation, a feeble irritation acts relatively more on the vaso-dilator and a strong irritation more on the vaso-constrictor nerves. With more rapid stimulation this difference was not noticed. Of the three-named results of electrical stimulation, the second—contraction followed by a dilatation—is by far the most common. Moreover, this result passes by insensible gradations into the first by the disappearance of the dilatation, and into the third by the disappearance of the contraction. The first and third results may therefore be regarded as particular cases of the second, in which the dilatation and the contraction are respectively reduced to zero, and on this supposition the average amount of contraction and of dilatation can be calculated for all the observations of a given rate and intensity of stimulation. Experiments on the effects of temperature were not sufficient to justify definite conclusions, but the results were not so marked as the observations of others had led the authors to expect. The studies of the effect of the varying length of time between the section of the nerve and its stimulation showed that the motor nerve-fibers might begin to show signs of degeneration as early as the second day after section; and the loss of power was nearly always complete on the fourth day. Probably the degeneration of the motor nerve-fibers follows a similar course to that of the vaso-constrictors, while that of the vaso-dilators is much slower than either. Investigations of the effects of the vascular contractions and dilatations described upon the blood-supply of the limb resulted in showing that the sciatic nerve contains fibers that exert a very marked influence upon the blood-vessels. Whether these changes occur chiefly in the cutaneous or in the muscular blood-vessels is a question which the experiments afford no data for deciding. In the use of the terms "vaso-constrictors" and "vaso-dilators," the authors do not wish to be understood as expressing any opinion upon the question of the independent anatomical existence of fibers having these functions. The phenomena observed may be quite as well explained on the hypothesis that there is one set of fibers acting in different ways under different circumstances.

Samuel Wilks has made a study of the symptom of sudden falling, in which he finds illustration of the fact recently accepted by clinical students that a much more intimate connection exists between the nerve-centers, nerve-

fibers, and muscles than had before been conceived. If a patient is subject to falling, it is evident that the higher motor regions, or some part of the lower track leading to the muscles have, for the moment, become inert, and we ask ourselves in what way this has been brought about. It is known that the function of the brain is dependent directly upon a due supply of blood, and that if the circulation be arrested unconsciousness occurs instantly and the person falls, and a general cessation of the circulation would result in the loss of other functions of the brain than that of consciousness; but it does not follow that there might not be an arrest to the flow of blood in some portion of the brain, leading to a paralysis of certain muscles without loss of consciousness. It is now generally believed that an inhibitory action can be produced on the different organs of the body through the nervous system, and that the brain can be included under the general law; and it may be a question whether some direct influence may not be exerted through the nerves, either on the heart or the brain. The author has taught that pressure on the neck, as in hanging or garotting, will often produce instantaneous insensibility and death; and that strangulation by no means implies congestion of the lungs and engorgement of the right side of the heart. That the brain can be acted on directly independent of the heart, would seem to be proved by cases of shock, whether physical or moral. In favor of this view may be mentioned the case of wild animals suddenly expiring from fright, and the lesser effects produced upon them by the so-called mesmeric process. Many instances might be mentioned to show how directly the healthy working of the muscles is under the influence of the brain, and that the activities of the two structures correspond. The possible agency of the spinal cord also deserves attention, for, seeing that the fibers of the motor tract proceed from the brain mostly to the anterior cornua of the cord, and from these again other nerves pass on, which stimulate the muscles, it is probable that nearly all the cerebral influence is conveyed through the spinal system. The author infers that the cord may be the seat of an inhibitory influence from the fact that, in some cases of very chronic spine-disease, patients have suffered, among their earlier symptoms, from sudden falling. When falling occurs, with loss of consciousness, the cause may be placed in the brain proper; when there is no loss of consciousness, it is looked for in the motor tracts below, or in the spinal centers.

Special Senses.—MM. Charpentier and Parinaud, working independently, have concluded that visual sensations involve two distinct kinds of physiological processes. Sensations of one kind are "photesthetic," and comprise luminous sensations pure and simple, merely discriminating light in distinction from darkness. The other sensations are truly "visual,"

and are necessary to the perception of color, of form, and to distinctness of vision. The first kind of sensation is supplied by the excitement of the rods of the retina through the chemical disintegration of the "visual purple," which is found in their outer segments. The power of giving rise to the second kind of sensations is confined to the retinal cones which wholly compose the bacillary layer of the fovea centralis, but which relatively decrease in number, with reference to the rods as we recede from this area. Parinaud declares that the increase of sensibility of the retina to small differences of luminosity when the amount of objective light is extremely small, is confined to the area outside of the fovea centralis. This increase of sensibility is proportionately greater toward the more refrangible rays.

Dr. H. Virchow has found the eye of the frog to be possessed of a beautiful ciliary muscle with lung-fibers, which, as in the case of all other animals, composes the posterior and outer part of the ciliary body. This ciliary body fills out the corner arising from the choroid, which closely adjoins the sclerotic, curving round to the iris at the point where the sclerotic passes into the cornea, and, besides the muscle, consists of the pigmentary fold and a network of fibers, the *ligamentum pectinatum iridis*, which is so little developed in man as hardly to merit any consideration.

A joint meeting of the Physical and Biological Sections of the British Association was held for the discussion of color-vision. Lord Rayleigh acknowledged the interest of both of these sides of science in the matter, and said that the first point established by the workers of the subject was that color-vision was three-fold. To prove this it was only necessary to match colors. Dr. König said that one could explain all phenomena of color-perception by supposing that each surface element of the retina consisted of three constituents, each of which, when affected, caused a different color-sensation. On this supposition all the various shades of color were the resultant of three fundamental sensations originating in those constituents. Dr. Michael Foster said that the physiologist's point of view was in antagonism to the physicist's in several radical points. The habit of smoking tended to produce color-blindness in the central field of the red; we were all more or less color-blind in the outside of the pupil. The more physiologists knew about the living body, the nearer they grew to the conception of the theory that there were two processes always going on in the body—a building up, and a breaking down. In the theory of color-perception, this idea was carried out in the supposition that certain rays of light acting on the retina broke down its substance and produced the sensation of color from those rays, and certain other rays broke down the substance of the retina and produced another sensation of color.

Recent investigations concerning the effects of various drugs on the sense of taste have shown that the prolonged application of ice removes the sensibility for all tastes. Cocaine destroys the sensibility for bitter, reducing the sensation to a feeling of contact only, while all other substances can still be tasted. Its effect in this direction is more marked than that of any other drug, though several drugs reduce the sensibility for bitter, and caffeine and morphia diminish the discriminative sensibility between different intensities of bitter. Sulphuric acid, in a 2-per-cent. solution, makes distilled water taste sweet, and confers a sweetish taste on a quinine solution at the tip, but not at any other part of the tongue. The experiments seem to suggest the supposition of separate fibers for the conduction of separate taste, analogous with the recently discovered hot and cold points in the skin.

Experiments by Prof. Valentine indicate that men of delicate smell can sniff a pint of air containing bromine in the proportion of a thirty thousandth of a milligramme, or the same quantity of air impregnated with the two millionth of a milligramme of sulphureted hydrogen, and can probably detect the 230 millionth of a milligramme of sulphureted alcohol or mercaptan.

Circulation.—De Jager has found it an impediment to the investigation of the relations of the circulation that the apparatus, with its tubes, etc., by means of which the research is attempted, are mere dead imitations, and have no qualities corresponding with the elasticity of the living tissue. However much we may desire to express what we observe in the organism in a more concise form—in other words to reduce the laws which there obtain to a formula—the data required for this purpose have nowhere been collected. Thus, if we wish to express in formulas the laws which govern the circulation of the blood, we ought to know—to mention but one factor—the coefficient of elasticity of the living wall of the vessels over the whole vascular system. But, when we wanted to employ such a coefficient, we should find that we knew very little about that of the dead tissue, and still less about that of the living one. Hence we are generally obliged to content ourselves with relative statements, when we wish to give absolute ones. The author, using elastic and non-elastic tubes, has made experiments on the effect of condensed and of rarefied air upon the respiration and the blood-current. From these he deduces the conclusion that, however we cause the condensed air to act during respiration, it will never be favorable, but always detrimental, to the blood-current. If, with smaller degrees of the action of condensed air, we obtain no effect on the blood-pressure, because the heart compensates the influence by its increased action, then greater expenditure of energy is demanded of the heart. If this does not occur, there always ensues a fall in the

mean arterial and a rise in the mean venous pressure. In all cases of weak cardiac action, or in general of bad circulation, every application of condensed air is to be disapproved of. These applications may be useful in order to improve, after an illness, the elasticity of the lungs, or to tear a slight pleuritic adhesion; but to weak persons, any application of condensed air may prove a source of danger. The application of rarefied air, on the other hand, may be favorable to the circulation. Application of rarefied air is to be recommended during expiration only; while condensed air should never be applied, if at all, otherwise than during inspiration.

W. D. Halliburton has continued his observations on serum, and concludes from them that the proteids in the blood of birds resemble very closely those of mammals. The proteids in the blood-serum of cold-blooded animals differ from those in warm-blooded animals in three particulars: The percentage of total proteids is smaller; the serum albumen is especially diminished, not only absolutely, but relatively to the serum globulin present; and the serum albumen seems to be a single proteid in cold-blooded animals, and can not be differentiated into three by fractional coagulation, as in birds and mammals. In all the vertebrates examined the temperature of coagulation of fibrinogen and serum globulin was approximately the same.

During the foregoing investigations Mr. Halliburton also noticed that the blood-serum of the animals was of an orange-red color. The coloring-matter was carried down with the proteids when they were precipitated as a heat-coagulum, and extracted from the precipitate as a yellowish-green substance. From the examination of its properties the conclusions were drawn that the blood-serum of the pigeon, hen, dove, and tortoise contains a yellow lipochrome (serum lutein), which can be most readily extracted from the serum by ethylic alcohol; that this is identical with the coloring-matter of the fat of the same animals; and that its presence in the muscles of the pigeon and in the muscles of the lower limbs of the hen is due to there being a large amount of fat mixed with the muscular fibers in those situations.

George T. Kemp sets forth the conclusion, derived from his experiments, that in addition to the red corpuscles and leucocytes the blood normally contains a third histological element—the "plaques." These have been variously considered as young red corpuscles; as nuclei floating in the blood; as being derived from the red or the white corpuscles; as being fibrin; and as being globular depositions produced by the cooling of the blood; but the author proves that, although strong resemblances exist between the plaques and other histological elements of the blood, there is not yet sufficient evidence to establish a genetic connection. The plaques should therefore, at

least for the present, be regarded as independent elements. When the blood is drawn, the plaques break down almost immediately, and this is not true of any other element of the blood; and this breaking down of the plaques seems intimately connected, in time-relations at least, with the clotting of the blood.

Dr. William Osler, of Philadelphia, who has made these plaques the subject of investigation for several years, expresses the opinion that no evidence of a histological character has yet been offered which proves the disintegration of the white corpuscles. The subject of the relation of the blood-plaques to coagulation, he says, is a new one. Filaments of fibrin can be readily seen projecting from the granule masses of the hematoblasts, and Schultz and Ranvier have thought that they became centers for coagulation. The fibrin sets or forms in a thick network about the granule-masses, but it is also found, independently of the plaques, in the serum, resembling free crystalline bodies. That the blood-plaques are centers for coagulation appears to be demonstrated by the introduction of a small piece of thread into the active circulation. After it has been left there for some minutes, it is found on withdrawing it that the blood-plaques have collected upon it. Red and white corpuscles are also found upon the thread, but the plaques are much more conspicuous, and if the thread is placed in a coagulable solution, after the red and the white corpuscles have been washed away, clotting will promptly take place, and the more abundant the plaques the firmer will be the clot.

At a recent meeting of the Physiological Society of Berlin, Prof. Kronecker spoke of a series of precautionary measures to be observed in cases of saving life by an infusion of common salt solution. Animals, after severe loss of blood, recovered in the best and most rapid manner by introducing into their blood-channels a like quantity of common salt solution. In the case of infusions of albuminous solutions, of serum sanguinis, and even of the blood of another individual of the same species deprived of its fibrin, there was, according to direct measurements, an invariable destruction of blood-corpuscles. With infusions of common salt solution, on the other hand, blood-corpuscles were seen to increase somewhat rapidly. Certain precautionary rules were to be observed in applying this agency to man. In the first place, the composition of the solution must be such as was most compatible with the human organism. A solution of 0.73 per cent. exercised the least irritation on the human body, and was therefore the most appropriate for infusions designed to save life. The addition of the carbonate of an alkali, recommended by some, had an injurious effect. Of great importance were the velocity and pressure with which the infusion was injected; both should correspond with the velocity and pressure in the vein into which the solution

entered. The common salt solution should, further, be disinfected beforehand by boiling, and the air which penetrated into the reservoir while it was being emptied must be filtered by means of a wadding stopper. The injurious effect of too strong pressure was illustrated by a comparative experiment on two rabbits.

B. W. Richardson has made some calculations of the amount of work performed by the heart in a healthy adult man. By tracing the work out by the minute, hour, and day, the author shows that it is equal to thefeat of raising 5 tons 4 cwt. one foot per hour, or 125 tons in twenty-four hours. Turning to the mileage of the circulation, and presuming that the blood is thrown out of the heart at each pulsation in the proportion of 69 strokes a minute, and at the assumed force of 9 feet, it may be estimated to be equivalent to 207 yards per minute, 7 miles per hour, 168 miles per day, 61,320 miles per year, and 5,150,880 miles in a lifetime of eighty-four years. The number of beats of the heart in the same long life would reach the grand total of 2,869,776,000. The imbibition of 8 fluid ounces of alcohol adds 24 foot-tons to the heart's daily burden.

Herr Holzmann sums up the following as the results of his investigations of the conditions of blood-clotting: A body called fibrinogen, belonging to the class of globulins, can be obtained from horse's blood, and solutions of fibrinogen neither coagulated spontaneously at ordinary temperatures, nor upon dilution with water; defibrinated blood, blood serum, watery extract of the albuminous coagulum, formed in blood-serum by the addition of alcohol, or the extract obtained from egg-albumen coagulated in the same way, the putrescent fluids obtained from cooked egg-albumen, and long-continued passage of oxygen, all cause typical coagulation of the solution of fibrinogen at ordinary temperatures with the production of fibrin. Fibrin-ferment is not peculiar to the blood, but occurs among the decomposition products of albumen. It is probable that fibrin is the product of the oxidation of fibrinogen; when a dog is rapidly bled to death (one and a half to three hours), the last portions of blood drawn clot quicker than the first, though the amount of fibrin does not markedly vary. Venous blood clots more slowly than arterial blood; suffocation delays coagulation. Curare, chloral hydrate, chloroform, quinine, and sodium carbonate also delay it.

Respiration.—Dr. Gad, reporting to the Physiological Society of Berlin respecting his experiments on haemorrhagic dyspnoea, showed that upon withdrawing a large supply of blood from an animal, dyspnoea at once ensues, in the form of inspirations, such as show themselves in all cases of dyspnoea induced by insufficient conduction of oxygen to the respiratory center. He called these heightened inspirations, which proceed side by side with an increased sinking of the blood-pressure,

"pneumatorectic" respirations. This respiration is distinguished from normal respiration by regular deep inspirations of unchanged frequency, in which the middle attitude of the thorax removes further from the expiratory than is the case in normal respiration. The curve of respiration then passes over into the normal, or convulsions set in, with increasing blood-pressure, and altogether irregular respiratory curves. After repeated heavy discharges of blood, the pneumatorectic passes into the "syncoptic" respiration, which is characterized by deep inspirations of very infrequent occurrence, during which the attitude of the thorax after expiration approaches even nearer to that which it holds in a dead body. Both the pneumatorectic and the syncoptic respirations are perfectly regular and typical. The former shows itself immediately after a heavy discharge of blood, the latter before death. Between these extreme forms there passed a series of others in an intercurrent manner. Among them was a very frequent superficial respiration, which was inadequate to the necessities of life, and was called "hypokinetic." Another form of respiration following heavy bleeding is that which shows itself in periodical increases of the amplitudes in respiratory movements.

Prof. Zuntz describes his experiments, with Dr. Geppert, to determine whether the gases of the blood, which are assumed to be the sole stimulations of respiration, are adequate to explain the dyspnoea that follows increased muscular activity. Quantities of blood were withdrawn from a dog while at rest and while at work without his perceiving what was done. The comparative examination showed that the increased respiration during work could not be caused by the blood-gases alone, for the contents of the arterial blood in carbonic acid were less, and in oxygen considerably more, than during a state of work. Another stimulus must accordingly act upon the central organs of respiration during work. It was shown that the effect could not proceed from stimulus of the respiratory muscles, or from reflex stimulus provoked by the corporeal muscles. From these facts, Prof. Zuntz conceived that he had conclusively established that a substance, still unknown, forming itself during the muscular activity, proceeded with the blood to the respiratory center and excited it.

Prof. Albrecht, of Brussels, remarks that the swimming-bladder of fishes is either found in open connection with the intestinal tube, or the connection between the two is obliterated; and in the latter case it might be assumed that the communication in question had existed in earlier stages of development. Many naturalists are of opinion that the swimming-bladder is homologous with the lungs, which likewise represent a tube in communication with the intestinal tube. This view is controverted by the author, because in all fish the swimming-bladder is placed on the dorsal side,

while the lungs are invariably situated on the ventral side, of the intestinal canal. If these two organs were homologous, the dorsal organ, to be transformed into a ventral, must make its passage around the oesophagus. The assumption, however, of either a right-sided or a left-sided passage, or of a double division of the swimming-bladder, each of which has wandered downward on one side, there to form two halves of the lungs, is a notion that labors under difficulties and contradictions. A very strong argument for regarding the swimming-bladder and the lungs as completely heterologous organs is afforded by those fishes which possess two bladders, one above and one below the intestinal canal—a phenomenon which would be impossible if these bladders were homologous. Some fishes also possess only the ventral swimming-bladder. Support to the author's view was also afforded by the fact that even in the case of mammalia, in which the ventral protrusion of the intestinal tube has developed into lungs, remains of the dorsal swimming-bladder are presented in a rudimentary form.

Digestion.—Prof. Ewald, in accounting for the second noise in swallowing, controverts the explanation of the phenomena by Kronecker and Meltzer, that it is produced by the contraction of the lower part of the oesophagus when the bit swallowed is pressed into the cardiac orifice. From observations on sound and diseased persons, and on animals, the author had arrived at the conclusion that the sound was generated by the entrance of air into the cardiac orifice. Both in the case of swallowing anything, and of not swallowing anything, whether it were altogether empty swallowing or only saliva trickling down, air penetrated into the lower part of the oesophagus. Air might, however, likewise penetrate from the stomach upward. In proof of the correctness of this interpretation were, first, the fact that the phenomenon was absent when water was carefully drunk; and, second, that the noise was sometimes heard without any bit being swallowed. Kronecker and Meltzer had said that the piece swallowed stayed for six seconds before the cardiac orifice till it got pressed into it. This did not seem to be the case, but the piece swallowed passed continuously into the cardiac orifice, and finally the co-entering air was pressed, with emission of noise, through the sphincter into the stomach.

Wenz and Kühne have investigated anew the question of the digestion of albumen in the intestine. The results of their experiments indicated but slight peptizing power. This conclusion agrees with those which were reached by Czerny and Latschenberger, Markwald and Démant, but is contradictory of those reached by a larger number of observers.

According to Klenze, the digestibility of cheese depends a good deal on its physical properties. All fat cheeses are dissolved or digested with great rapidity, because the mole-

cules of caseine are separated only by the fat, and so the solvent juice can attack a large surface of the cheese at one time. Whether the cheese be hard or soft does not appear to matter, and there is no connection between the digestibility and the percentage of water present in the cheese. The degree of ripeness and the amount of fat have, however, considerable influence, for both these conditions render the cheese more friable, and so allow of intimate contact of the juice.

Drs. N. A. Randolph and A. E. Roussel have made a study, with pigs, of the nutritive value of branney foods with a view of testing the validity of the belief which some dietarians carry into their practice, that "Graham bread" or bread from whole wheat is the most wholesome and the most nutritious. They have summarized their conclusions as follows: The carbo-hydrates of bran are digested by man to but a slight degree. The nutritive salts of the wheat-grain are contained chiefly in the bran, and therefore, when bread is eaten to the exclusion of other foods, the kinds of bread which contain those elements are the more valuable. When, however, as is usually the case, bread is used as an adjunct to other foods which contain the inorganic nutritive elements, a white bread offers, weight for weight, more available food than does one containing bran. By far the major portion of the gluten of wheat exists in the central four fifths of the grain, entirely independent of the fourth bran layer (the so-called "gluten-cells"). Further, the cells last named, even when thoroughly cooked, are little if at all affected by passage through the digestive tract of the healthy adult. In an ordinary mixed diet, the retention of bran in flour is a false economy, as its presence so quickens peristaltic action as to prevent the complete digestion and absorption, not only of the proteids present in the branney food, but also of other food-stuffs ingested at the same time. Inasmuch as in the bran of wheat, as ordinarily roughly removed, there is adherent a noteworthy amount of the true gluten of the endosperm, any process which in the production of wheaten flour should remove simply the three cortical protective layers of the grain, would yield a flour at once cheaper and more nutritious than that ordinarily used.

J. R. Walker, dental surgeon, has drawn some interesting conclusions from his observations of the conditions of the teeth of the people living in a region near the Gulf of Mexico, where their food and the water are destitute of, or only scantily provided with, lime constituents. The constitutions of the natives of the district seem to have become adapted to the deficiency in mineral elements, and have acquired the power of appropriating from the meager supply furnished them enough to produce fairly good teeth. But residents not native, coming from regions where calcic elements are more abundant, are not able to assimilate enough mineral salts to keep their

teeth in good condition, and these undergo de-calcification and softening. The process is not a breaking down of the organic structure; for if the material necessary to recalcify is provided in a form which Nature can appropriate, the softening may be prevented; and teeth which have become softened may be rendered hard and durable. Such repair has followed the return of residents natives of other places to their old homes. This recalcification is promoted by the use of lime-water in the drink of subjects, and more promptly and effectively by the use of a new preparation of lime in the form of a sirup, of much greater strength than aqua calcis; but the direct administration of the phosphates proved entirely unsatisfactory, and any change from ordinary diet was found, as a rule, entirely inadequate.

J. N. Langley and J. S. Edkins have made experiments to determine whether pepsin is present to any considerable extent in the gastric glands during life. Among the chief results of their investigation are that pepsin is very rapidly destroyed by alkalies and by alkaline salts. Proteids lessen the rate of destruction, probably by combining with the alkali or alkaline salt. Pepsin prepared from a frog is less rapidly destroyed than pepsin prepared from a mammal. It having been found that the aqueous extract of the gastric mucous membrane of a hungry animal does not lose peptic power, or loses very little, on brief treatment with sodium carbonate 1 per cent., the conclusion was deduced that pepsinogen, but little or no pepsin, is present in the gastric glands in hunger. The difference between pepsin and pepsinogen in their behavior to reagents is one of degree only and not one of kind. Pepsinogen like pepsin is destroyed by alkalies and alkaline salts, but the destruction is much slower. Pepsinogen is very rapidly converted into pepsin by dilute mineral acids. In the absence of acid, pepsinogen is fairly stable; in neutral and in alkaline solutions its conversion is slow; and in a glycerine extract it may remain unchanged for years. Pepsinogen prepared from the frog is not affected by passing a stream of oxygen through it. In consequence of the rapid conversion of pepsinogen to pepsin, it is difficult to be certain whether pepsin is or is not present in the gastric glands during digestion and after the injection of peptone into the blood. In both cases acid gastric juice is present in the stomach, but it may have been found even after death. In fact, pepsin is sometimes present in an extract prepared from the gastric glands of a digesting animal; but it is not always present, so that digestion does not necessarily cause an accumulation of pepsin in the gland-cells. It is concluded that normally the excretion of pepsin from the gland-cells goes on hand in hand with its formation from pepsinogen; so that neither in hunger, nor in digestion, nor after the injection of peptogens into the blood, is more than a trace of pepsin present. Carbonic acid destroys pepsinogen, and pepsin less

readily; while peptone delays the destruction, and albumen and globulin in less degree. Some of the experiments suggest the existence of different kinds of pepsin, either caused by the action of reagents, or naturally formed from pepsinogen.

Muscular System.—Experiments to determine the character of the muscular contractions which are evoked by the excitation of the various parts of the motor tract have been made by Messrs. Horsly and Schäfer, the results of which they have supplemented with numerous observations on voluntary and epileptoid contractions in man. The principal conclusion arrived at is that every prolonged contraction of the skeletal muscles which is provoked by excitation, whether natural or not, of any part of the nerve-centers, is a tetanic contraction that has been produced by a series of impulses generated in the nerve-centers and passing along the motor nerves at an average rate of about ten per second. As to the place of generation of the rhythm it is certain that in some cases it occurs in the lower nerve-centers (i. e., in the motor nerve-cells of the spinal cord, medulla oblongata, pons, and mesencephalon).

Drs. S. Weir Mitchell and Morris J. Lewis have published a paper on "Tendon-Jerk and Muscle-Jerk in Disease," in which they hold that the jerking of the knee is a direct muscular response, and not due to reflex action. They also show that every muscular action, such as winking, exaggerates the phenomena of the jerkings. To demonstrate this, the patient should lie down with the knee slightly bent, and be directed to wink at the time the tendon is tapped, or just before, when it will be noticed that the jerk is much increased. This is more beautifully shown in the act of phonation, when the patient should be directed to count strongly, so as to bring the whole chest into play at the time the test is applied. A decided sensation, such as heat, cold, or an injury, will increase the responsive power of the muscle or tendon which has been struck. Both the tendon and the muscle jerk are re-enforced by irritation of distant parts, a phenomenon which has been attributed to an increase of tone in the muscle. This re-enforcement disappears when the muscles are cut off from the spinal centers. The experimenters noted also, in associated movements, that in some cases, if the patient is directed to shut his right hand, the left hand will also shut to a certain extent; and if he is sitting down, the leg may be drawn up. Another symptom noticed is a certain degree of prominence of the eyeballs.

E. A. Schäfer, from his investigation of the rhythm of muscular response to volitional impulses in man, deduces the conclusions that a prolonged voluntary contraction is an incomplete tetanus produced by from eight to thirteen successive nervous impulses per second. About ten per second may be taken as the average. The average rate of muscular response to volitional impulses is approximately the same

in man as in other mammals that have been examined; it is also approximately the same as the average rate of muscular response to rapidly recurring excitation of the nerve-centers in animals. The average rate of muscular response to volitional stimuli in man is approximately the same as that obtained both in man and animals as the result of pathological or other excitation of the cortex cerebri producing epilepsy, and it is nearly the same as the rate of muscular response which is due to activity of the spinal cord alone.

From a study of the effect of muscular exercise on the temperature of the body, M. Mosso concludes that in thermometrical relations the nerves have much greater action than the muscles. Strong emotion and pain will raise the rectal temperature from $0^{\circ}5$ to 2° . During a walk of two days, the author observed that his temperature was not in proportion to the work done by his muscles. When dogs rest after long fatigue, it is observed that their heat sinks below the normal level, though their muscular exertion has been great. Experiments with strychnine and curare also go to confirm the conclusion that internal temperature depends chiefly on the nerve-centers and their greater or less excitation.

Prof. Brown-Séquard has demonstrated that for several weeks after death, or as long as *rigor mortis* persists, the muscles of an animal undergo slow alternate contractions and elongations. The movements were only perceptible when one or the other set of a group of antagonistic muscles was divided, and they ceased totally when cadaveric rigidity finally passed away. The movements are absolutely independent of external conditions of temperature, moisture, etc. In fact, in the same animal, while some of the rigid muscles are elongating, others are contracting, and still others are at rest. The author concludes that these movements prove that the muscles in *rigor mortis* are not dead, but are still endowed with vital powers, while they are, however, in a certain chemical condition which is antecedent and preparatory to final death.

Glandular System.—Du Bois-Reymond in 1857 found the skin of the frog to be the seat of an electromotive force of such a direction that the outside of the skin was negative to the inside; and further investigation showed that the property was due to the glandular stratum. Similar currents were discovered by subsequent observers in the stomach and intestines, the mucous membrane of the throat, and the tongue of the frog. The investigation of the properties, and variations of this current has been continued by W. M. Bayliss and J. Rose Bradford. Concerning the "current of rest," the results of previous observers were confirmed: the outside of the skin was invariably negative to the inside, but the amount of potential difference varied considerably. The authors were led to the opinion that this current, in the case of the frog's skin as well as that of

all animals, with cutaneous glands of any kind, is partly due to the epidermis, but partly also to the glands themselves; and this opinion was confirmed by the results of the consecutive action of corrosive sublimate and atropin in the frog's skin. Concerning the electrical changes that occur in the glands of the skin on excitation of the nerves supplying it, Engelmann asserted that it was of the nature of a negative variation of the current of rest, or that the mouths of the glands became negative to the bases. Hermann, on the contrary, saw a positive variation, either alone or accompanied by a small preceding negative variation, or "Vorschlag." Experiments made in search of a reconciliation of this discrepancy showed that the character of the variation was different at different seasons. Observations during January confirmed Hermann's observations; but as the breeding-season approached, pure negative variations became more frequent, and it was at last extremely rare to find a positive variation either alone or with a negative "Vorschlag." After March, the positive variation began to reappear, gradually becoming more frequent, until ultimately it became the usual variation again. During the last three months of the year, there was a third phase to the variation, of a negative sign, but very slow as compared with the other two. The exciting change, therefore, when complete, consists of three phases. Several hypotheses have been proposed to account for these phenomena; among them is one by Hermann, which, supposing that the current of rest is due to the epidermis and that during rest the glands give no electrical current owing to their closed spheroidal form, the epidermic current becomes relatively much more powerful. This hypothesis seems to be the more acceptable one, but not completely so; for the authors are loath to admit that negative variations of the power that has been observed, are the result merely of the preponderance of the epidermic current over the glandular current.

J. Munk has carried on experiments during two years to determine between Ludwig's filtration theory and Heidenhain's secretion theory, of the secretion of urine. According to the former theory, the blood-pressure prescribes the measure for the secretion; according to the second theory, the urine is secreted from the secretory epithelial cells of the kidneys, and the quantity of matter secreted is dependent on the rate of movement of the circulation of the blood. The facts deduced from the experiments involved the exclusion of the possibility of a central influence being exercised from the heart or from the nervous system on the kidneys, and were therefore deemed by the author arguments proving that the urine is secreted by the renal epithelial cells.

Prof. Eternod, of Geneva, has published an account of regeneration of the spleen in the fox, the interesting point of which is that four months after the spleen had been entirely re-

moved, a nodule of new formed splenic tissue was formed, inclosing in its substance foreign bodies that could only have been introduced through the wound at the time of the operation. Apart from some embryonic tissue, the nodule in microscopic character was almost identical with normal spleen. Among the other conditions found, the most noteworthy were the new formation of adenoid tissue and the transformation of the parenchyma of lymphatic glands into splenic tissue. This last circumstance supports the view held for some time by Prof. Eternod that the spleen is only a vast elaborated lymphatic gland.

Dr. Alfred Baring Garrod has made a series of experiments to determine the place of origin of uric acid in the animal body, and particularly which of the two hypotheses is correct: that it is first present in the blood and is then secreted from the blood by the kidneys; or whether it is formed by the kidneys themselves. By the method he devised, he was able to discover the presence of uric acid in minute quantities of blood. From the results of his investigations, he draws the conclusion that every argument is in favor of the hypothesis that uric acid is formed by the kidney cells in the form of ammonium urate, and that the traces of sodium urate found in the blood are the result of a necessary absorption slight in amount of the ammonium urate from the kidneys into the blood, and its subsequent conversion in that fluid into sodium urate.

Reproduction.—In his work on the "Physiology of the Embryo," Dr. W. Preyer has presented the results of the investigations in this branch of physiology from the time of Aristotle down. The matter of the work is largely drawn from observations on the common chick, but other animals—mammalia, reptiles, and fishes—have been drawn upon for information; and the most valuable observations recorded are those on the Guinea-pig, dog, etc. The author laments the scarcity of material and of opportunities for investigation on the human subject; and recommends that in foundling hospitals and lying-in institutions a supply of apparatus should be kept ready for observing the physiology and pathology of the new-born, since much may be learned from the phenomena which occur within the first minutes or hours after birth. It is shown that in the chick the primitive blood, or haemolymph, begins to move before the occurrence of the first heartbeat. Important results are recorded of experiments connected with the effect of temperature and of chemical agents on the embryo, which, considered together with those relating to the diffusion of substances between mother and fetus, have a practical bearing on the medical use of the various drugs during pregnancy. In certain experiments, the coagulation of blood from the embryo was observed to be very slow. Other experiments show that some of the digestive fluids are early in appearance and activity, while the amylolytic

faculty is acquired at a comparatively late period. Spontaneous movements of the embryo take place long before its maturity; and Prof. Preyer considers that muscular action occurs earlier than is commonly supposed.

The generally received theory that the "corpus luteum is the effect of pregnancy alone," and is therefore an infallible sign of the pregnancy, has been shaken by more recent investigations. Arthur Farre and other observers have shown that, whether the ovum is fecundated or not, the corresponding Graafian follicle presents after its rupture certain determinate characters which collectively negative the conclusion cited above and which was arrived at by Haller. The initial stages of development in the corpus luteum of ovulation and in that of pregnancy are essentially the same; but the history of the corpus luteum of ovulation is played out in about two months, while that of pregnancy extends over a period of thirteen or fourteen months.

Action of Poisons.—Dr. H. C. Wood, of Philadelphia, has published a series of observations on the physiological action of hyoscine, one of the two active principles contained in henbane. It is an alkaloid yielding crystallizable salts. He generally used the hydrobromate, but occasionally the hydriodates. Frogs were found to be sensibly affected by $\frac{1}{2000}$ their weight of hyoscine, but at least $\frac{1}{500}$ was necessary to produce a toxic action. The symptoms are very uniform, and consist of an increasing sluggishness, with a progressive loss of voluntary movement and a corresponding depression of the reflex activity, but without marked loss of sensibility. Death is brought about by failure of breathing, while the heart beats for a considerable time after arrest of respiration. The alkaloid therefore acts as a motor-spinal depressant; as a centric respiratory depressant, causing death by asphyxia. It has very little effect on the circulation, what influence it does exert being in the normal animal set aside by the asphyxia it produces. It does not paralyze the pneumogastrics, but in enormous doses paralyzes the vaso-motor system. On the heart itself its influence is feebly depressant. One hundredth of a grain injected hypodermically into the human subject always produced well-marked constitutional effects. The symptoms usually came on in about ten minutes, and consisted of dizziness, impairment of vision, dryness of the mouth, and an inability to walk straight. In many instances this was followed by deep sleep, lasting for many hours.

M. Lacerda, who is investigating the properties of the poison of serpents, has ascertained that the venom of the *Hachis rhambeata* has the power of digesting albuminous substances, and of emulsifying fats. A piece of beef chopped and put in a solution of the poison immediately became pale and loose, and, after being kept for sixteen hours at a temperature at no time of more than 84° , was broken up into a greenish liquid. Coagulated egg-albu-

men, treated in the same manner, was broken up in three hours and completely dissolved in twenty-four hours. A few drops of oil were rapidly emulsified on being shaken up with the diluted poison. These facts seem to indicate that the action of the poison takes effect through the digestion of the living albuminous tissues, and M. Lacerta suggests that, besides serving him for attack or defense, the poison may also assist the serpent by expediting the digestion of the victim. M. Couty, remarking on M. Lacerda's paper, expressed the conclusion, from his own researches, that the venom of serpents is not a simple poison, but a pathogenic agent capable of selecting certain organs or tissues, as the lungs or the left side of the heart as the center of its operation, where it produces haemorrhages in its intravenous injection. The local inflammation which it produces when inoculated beneath the skin is intense, and is produced preferably in the lungs, less immediately in other parts. Animals are very differently susceptible to the influence of the poison; the monkey, weight for weight, is about a thousand times more readily affected than the frog. Many of the poisons after keeping contain bacteria, which can be cultivated, the culture-liquid from which, or the fluids from an inflammation due to the poison, cause symptoms different from those of the poison itself, and comparable to simple septicæmia.

Prof. Brieger, reporting to the Physiological Society of Berlin concerning his progress in the investigation of the ptomaines, said that in a communication made a year previously he had described five well-characterized bases—neurine, muscarine, neuridine, and two other diamines—extracted from the ptomaines, which were developed in putrefying nitrogenous substances and in the form of crystalline salts, and had subjected them to precise chemical and physiological analysis. Neurine, muscarine, and a base similar to, but not identical with, trimethyl-diamine were found to be very violent poisons, while the two other products were less poisonous. Investigating the ptomaines which developed under natural putrefaction in human corpses, Prof. Brieger found that quite different bases came to light from those which appeared under artificial putrefaction. Immediately after death lecithin decomposed itself, and large quantities of choline became developed. Along with this base neuridine appeared on the third day of putrefaction, increasing in quantity with the progress of the change. From the seventh day after death there came to view an entirely new base, which was examined with hydrochlorate of platinum in crystals, as well with hydrochlorate of gold and hydrochloric acid. This base, altogether different in its quantities and in its composition from the bases hitherto known, was named "cadaverine." It increased in quantity with time, while choline and neuridine diminished. Later on another new base appeared, which was called putrescine. Both

these new bases acted but weakly on the animal organism. There were also found in the later stages of putrefaction two diamines of very powerfully poisonous effect, which, injected even in small doses in animals, produced death under paralysis. A survey of the whole series of isolated ptomaines taken from corrupting nitrogenous substances showed that, contrary to the former supposition, they were all simply compound, or were all diamines belonging to the series of fats. Prof. Brieger had endeavored to study the bases produced by pathogenic bacilli, but had not yet reached satisfactory results.

Prof. Bouchard has recently published a memoir on the poisonous character of normal healthy urine, of which he has made investigations. The poisonous nature of this secretion was first studied by Feltz and Ritter in 1881, and again by Prof. Bouchard in 1884. The first effect observed after an intravenous injection of a specified quantity is a contraction of the pupil; the breath movements are much increased in number, but diminished in extent; heart-movement is undecided and feeble; the secretion of urine is much increased, and the temperature is lowered; reflexes are abolished and coma sets in, ending in death without convulsions, except slight muscular spasms. The quantity of urine necessary to kill a kilogramme of living matter varies, partly according to the state of dilution of the urine, but 45 cc. may be taken as the average. It is calculated on this basis that an adult healthy man eliminates in twenty-four hours for each kilogramme of his weight a quantity of urinary poison capable of killing 465 grammes of living matter. Hence it may be calculated that it would take a healthy man two days and four hours to manufacture sufficient poison to intoxicate himself. The toxicity of urine, however, varies from time to time and under different circumstances, and its properties are found to differ according to the state of waking or sleep. During sleep less urine is excreted, but it is more concentrated; nevertheless, the urine of sleep is less poisonous than that of waking. In eight hours of sleep a man eliminates from two to four times less urinary poison than during eight hours of waking. Sleep does not, however, hinder the elimination of the poison. The period of minimum toxicity is just before sleep. Toxicity then gradually increases till at the moment of waking it is five times as intense, and eight hours afterward attains its maximum, which is nine times as great as the minimum. From this point it rapidly falls in eight hours to the minimum, at the beginning of a new period of sleep. The differences between the urine of sleep and the urine of waking are qualitative as well as quantitative. The urine of sleep has a convulsive, the urine of waking a narcotic, action; the one produces muscular spasm, the other sleep; so that, viewed in this light, the body produces during waking substances whose accumulation tends to produce sleep, and during

sleep substances which act on the muscular substance, producing contraction on waking. Further, the one kind of poison is antagonistic to the other, so that if the urine is mixed in quantity proportionate to the amount eliminated, the product is not the mean between the two, but is considerably less. The toxicity is two thirds the sum of the separate toxicities.

R. Norris Wolfenden, from an investigation of the venom of the Indian cobra, concludes that its toxicity is not due to any bacillus, bacterium, or living organism, or to any alkaloid, or to any hypothetical "cobric acid," but solely and wholly to proteid constituents. These proteids are globulin, which probably kills by interference with the respiratory mechanism and without paralysis, causing local inflammation; albumen resembling acid albumen, which is precipitated along with globulin by saturation, and is supposed to exert an action, on the respiratory apparatus chiefly, like globulin, but less intensely; a serum albumen, which produces a kind of ascending paralysis with fatal termination, by suppression of the respiratory function from probable paralysis of the muscles concerned in respiration; and traces in some specimens of hemi-albumose and questionable traces of peptone, both of which are regarded as accidental. The venom of the Indian viper (*Daboia Russellii*) is much like that of the cobra in constitution and action, but contains a proteid nearly allied to the acid albumen of the cobra venom, which the author regards as an albumose. The nature of the proteid molecule and the mode of its toxic action are presented by the author as subjects on which continued investigation is desirable.

Miscellaneous.—A discussion has been had between Prof. Virchow and Dr. Weismann concerning the origin and the transmission of variations from the animal type. Prof. Virchow holds that they are largely brought about by deviations in structure strictly speaking pathological. Dr. Weismann contends that they are the result of the law of adaptation. Prof. Virchow, replying to some of Dr. Weismann's remarks at the Strasburg Conference of German Naturalists and Physicians, points out that Darwin, though not a pathologist, recognized the want of a clear line of distinction between monstrosities and mere variations. Weismann having denied the inheritance of acquired properties, Virchow adduced the facts of acclimatization, and showed that colonies could not be founded if the powers so acquired were not transmissible to posterity. Weismann regards acclimatization rather as the product of selection, such individuals surviving as by the possession of inherent qualities are able to live under the changed conditions, while their survival is not due to the acquisition of new powers. In this discussion much turns on what is meant by an acquired quality. Weismann means by it all that is imparted by some external agency, and he would limit the influence of external causes to unicellular organisms, where-

as variation occurs through sexual reproduction. Virchow points out that external agencies ought not to be limited to those which operate outside the organism. In a multicellular organism variation may occur in some cells through the operation of other cells, or strictly within the body. Indeed, the influence of the sperm-cell upon the germ-cell is an external influence, and therefore, although we commonly speak of inherited qualities as being internal or predisposing, in strictness the qualities transmitted from the male parent are the result of an external agency when contrasted with those derived from the germ-cell. Applying these considerations to the pathological processes, Virchow shows that these are the result of external agents, and that they produce a change in the typical organization, and thus by mere analogy the conclusion is arrived at that many racial—even specific and generic—differences have been brought about by processes which may be deemed pathological. The general factors which determine the persistence of such deviations, and their transmission by inheritance, are not fully known; use and disuse explain some, adaptation accounts for others; but, however explained, the fact that acquired qualities are inheritable remains assured.

Dr. Gopadge, of Russia, has made special experiments on the physiological effects of massage, particularly with respect to the power of assimilation. He was assisted by four medical students, who submitted to all the operations of the process, to diet, and physiological examinations. In all four cases the appetite was decidedly increased during the week in which the massage was practiced, and after it had stopped. Similarly, the amount of nitrogenous transformation was augmented. The augmentation persisted in two of the cases, but in the other two the transformation was less during the third than during the first week. The quantity of nitrogen assimilated increased in all the four cases, independently of the amount of food ingested. During massage two of the subjects gained and two lost slightly in weight, but during the week following all four gained. The axillary temperature decreased for about an hour after the operation, after which it began to rise. The effect on the pulse varied with the character of the massage; when this was carried on slightly, the pulse became more frequent, but, when the manipulation was more forcible, the pulse became slower. The effects in both cases persisted for an hour or more after the termination of the operation. The author suggests that massage may prove useful in chronic gastro-intestinal catarrh, in chronic constipation due to an atonic condition of the intestines, and in cases where there is a lack of tone in the abdominal muscles.

Prof. Ehrlich has obtained some physiologically important results from his investigations into the susceptibility of the different tissues to coloring-matters. If coloring solutions are

injected into living animals, and then, with the utmost expedition, particular tissues are examined, interesting reactions of the living tissue under the coloring-matters may be perceived, which, though rapidly evanescent, reveal facts which by other methods are in part wholly unascertainable, in part to be ascertained only with difficulty. In his paper, Prof. Ehrlich describes the appearances which he observed in the tissues of the tongue, the cornea, iris and retina, the muscles, vessels, arteries, capillaries, and veins, nerve stems and roots, and brains.

Prof. Busch, in studying the laws of ossification, inserted grains of shot or pins into the bones of dogs, and in due time made measurements to determine the manner in which growth had taken place. The results indicated, in the case of the lower maxilla, that increase in length was not due to interstitial growth, but to apposition. In the case of the long bones a satisfactory result was not reached respecting epiphysis, but it was shown that the diaphyses grow by apposition from the epiphyseal line, and that, in proportion as the parts retire from this line, they become from reabsorption thinner and slenderer. Prof. Wolff says that a large number of experiments which he had performed on the lower jaws of young rabbits gave results contrary to those reached by Prof. Busch, showing an interstitial growth of the bone.

PORTUGAL, a constitutional monarchy in southwestern Europe. The Cortes, as the representative assembly is called, consists of a House of Peers, with 162 members, and a House of Deputies, with 173. The reigning sovereign is Luiz I, born in 1838. The ministry is composed as follows: President of the Council and Minister of the Interior, J. L. de Castro Pereira Corte Real; Minister of Justice, Francisco A. da Veiga Beirao; Minister of Finance, Mariano Cyrillo de Carvalho; Minister of War, Viscount de São Januário; Minister of Marine and the Colonies, H. de Macedo; Minister of Foreign Affairs, H. de Barros Gomes; Minister of Public Works, Commerce, and Industry, Emygdio J. Navarro.

Area and Population.—The area of the kingdom is 37,793 square miles. The population in 1881 was 4,708,178. The only two large towns are Lisbon, with 243,010, and Oporto, with 105,838 inhabitants. The number of emigrants in 1884 was 11,332 from the mainland and 6,186 from the islands.

Commerce.—The total value of the special imports in 1882 was 34,937,000 milreis, and of the special exports 24,762,000 milreis. Great Britain has much the largest share in the foreign trade, furnishing 15,232,000 milreis of the imports, and taking 10,828,000 milreis of the exports. Brazil furnished 2,140,000 milreis of imports, and received Portuguese products of the value of 5,964,000 milreis. France comes next, with 4,133,000 milreis of imports and 1,472,000 milreis of exports; and then the

United States, with 5,298,000 milreis of imports and 610,000 milreis of exports. The total value of the imports in 1885 was 37,207,000 milreis; and of the exports 24,975,000 milreis, divided among the various classes of merchandise as follows, the values being given in milreis:

CLASSES OF MERCHANDISE.	Imports.	Exports.
Cereals	5,260,000	251,000
Seeds, fruit, etc	799,000	1,690,000
Colonial produce	3,025,000	85,000
Wines and liquors	160,000	14,917,000
Animals and animal products	4,665,000	2,387,000
Minerals	2,271,000	711,000
Metals	6,604,000	990,000
Skins and leather	2,577,000	178,000
Timber	1,176,000	2,856,000
Pottery and glass	304,000	17,000
Textiles and textile materials	5,876,000	127,000
Drugs and chemicals	390,000	386,000
Various manufactures	4,009,000	480,000
Other articles, raw and manufactured	23,207,000	5,645,000
Total	37,116,000	24,975,000

There were 2,246 sailing-vessels and 3,215 steamers engaged in foreign commerce entered in 1885, the former aggregating 395,000 and the latter 3,018,000 tons. The merchant marine in 1886 consisted of 36 steamers, of 16,583 tons, and 433 sailing-vessels, of 67,518 tons.

Railroads, Posts, and Telegraphs.—There were 1,426 kilometres of railroad in operation in 1886, besides 90 kilometres of secondary lines; and 477 kilometres of the former and 97 of the latter class were in process of construction.

The post-office during the year 1885 forwarded 20,103,329 letters, 2,239,602 post-cards, 4,033,467 circulars and book packages, and 12,385,193 journals.

The length of the telegraph lines belonging to the state in the beginning of 1885 was 4,978 kilometres, with 11,732 kilometres of wire. The number of paid messages in 1884 was 707,304, of which 460,341 were internal, 87,192 international, and 159,771 in transit. The receipts amounted to 220,684 milreis.

The Army and Navy.—The peace effective of the Portuguese army on March 31, 1886, was 2,476 officers and 36,191 men, with 3,626 horses and mules. The war effective is 125,057 officers and men, with 7,821 horses, 4,870 mules, and 264 cannon. The number of troops maintained under arms in the colonies is 8,826.

The navy in 1886 consisted of 1 ironclad corvette, 6 unarmored corvettes, 15 gunboats, 9 other steamers, and 2 torpedo-boats.

Finances.—The receipts of the Government during the year ending March 31, 1884, were 35,078,940 milreis, including 4,089,000 milreis of extraordinary receipts; the expenditures amounted to 36,464,423 milreis. The budgets for 1886-'87 estimates the receipts, including 3,890,000 milreis from extraordinary sources, at the sum of 36,161,150 milreis, and the expenditures at 38,021,535 milreis.

The public debt on June 30, 1885, amounted to 477,028,108 milreis, composed of the internal debt refunded at 3 per cent., of the nomi-

nal capital sum of 241,246,954 milreis, and the foreign debt, amounting to £52,395,812. The interest paid on the debt during 1885 was 15,243,978 milreis, while 1,838,028 milreis of the interest on the domestic debt and £688,-078 of that on the foreign debt was unpaid.

Colonies.—The colonial possessions of Portugal have an extent of over 700,000 square miles, and a population of nearly 5,000,000. At the Berlin Congress of 1884-'85 the claim of Portugal to the territory extending from Ambriz to the mouth of the Congo was admitted. The Portuguese territory on the bank of the Congo extends to nearly opposite Vivi. The region to the eastward is also conceded to Portugal, as far as the Kwango, and along that river to beyond the parallel of 11° south latitude. On the coast north of the mouth of the Congo a small strip, including Cabinda and Landana, was awarded to Portugal. The budgets of revenue and expenditure of the various colonies were in 1885 as follow, the values being given in milreis:

COLONIES.	Receipts.	Expenditures.
Cape Verd Islands.....	254,659	242,615
Guinea.....	72,980	178,078
St. Thomas's and Prince's Islands.....	146,518	178,253
Anzola.....	598,882	818,774
Mozambique.....	462,118	688,987
India.....	736,097	883,057
Macao and Timor.....	480,444	466,172
Total	2,746,663	3,405,936

A revolt of serious dimensions occurred in the colony of Mozambique in 1886. On Oct. 16, King Inhambane, a loyal chief, was attacked by King Muzilla at the head of 30,000 natives, but the aggressor was repelled, and on the 23d he was defeated by 16,000 Portuguese and native troops under the command of the Governor-General. The troops pursued the rebels in order to drive them out of the territory of King Inhambane and punishing them in their own district. A special expedition was subsequently sent against them.

Change of Ministry.—The Fontes Cabinet proposed financial measures that were generally disapproved throughout the country. They were also unable to compose a serious administrative conflict between the towns of Braga and Guimaraes. These and other difficulties the ministry of the Regeneration party proposed to master by adjourning the Chambers, but the King would not agree to an adjournment. Fontes and his colleagues thereupon offered their resignations, and a Progressist Cabinet was formed under the presidency of Luciano de Castro.

The session of the Legislature was closed on April 17. The Chambers, notwithstanding the preponderating majority of the Regeneration party, granted the Progressist ministry powers to raise taxes and carry on the government during the financial year 1886-'87 and to draft the army and navy recruits.

Ecclesiastical Relations in India.—The Portuguese Government has laid claim to powers

over the Church in India that were disputed by the Curia. In 1886 an agreement was reached according to which the Archbishop of Goa receives the title of Patriarch, the boundaries of the three other archdioceses are defined, and Portugal has control over the appointments of archbishops; but over the rest of India the Curia has direction of ecclesiastical affairs.

PRESBYTERIANS. I. Presbyterian Church in the United States of America.—The following is the summary of the statistics of this Church, as they were reported to the General Assembly in May, 1886. The statistics of 1885 are appended for comparison :

DESCRIPTION.	1885.	1886.
Synods.....	25	26
Presbyteries.....	196	199
Candidates.....	839	906
Licentiates.....	322	337
Ministers.....	5,474	5,546
Ordinations.....	130	154
Elders.....	20,602	21,212
Deacons.....	6,472	6,676
Churches.....	6,098	6,281
Admissions by examination.....	42,972	51,177
Communicants.....	64,025	661,809
Baptisms of adults.....	15,191	18,474
Baptisms of infants.....	21,012	21,616
Members of Sunday-schools.....	720,080	743,518

CONTRIBUTIONS.	1885.	1886.
For home missions.....	\$632,906	\$760,947
For foreign missions.....	545,618	651,160
For education.....	115,870	97,954
For publication.....	84,218	84,789
For church erection.....	152,650	248,016
For relief fund.....	83,924	99,479
For freedmen.....	97,619	91,273
For aid for colleges.....	85,471	119,730
For sustentation.....	21,410	21,750
For General Assembly.....	55,200	60,812
Congregational.....	7,541,017	7,640,855
Miscellaneous.....	823,755	771,116
Total.....	\$10,192,058	\$10,592,881

The gross receipts of the Board of Church Erection for the year were returned to the General Assembly at \$116,578. Grants amounting to \$59,673 had been made to 144 cases, and special aid had been given in 39 other cases, to the amount of \$7,173.

The Board of Aid for Colleges had afforded help to seventeen new institutions. Its receipts for the year had been \$67,908.

The receipts of the Board of Relief had been: For the permanent fund, \$18,414; for current use, \$120,437; besides boxes of clothing valued at \$5,066. The beneficiaries of the board numbered 484 families. Twenty-five ministers had been cared for at the "Ministers' House," in Perth Amboy, N. J.

The Board of Publication had received from all sources \$298,419, and had expended \$284,466. The sales had amounted to \$215,142. A capital stock of \$496,323 was returned. The sum of \$45,241 had been contributed for missionary work.

The receipts of the Board of Home Missions, including what had come into the treasury for the liquidation of the debt, had been \$671,728.

The summary of the work of the missions gives: Number of missionaries, 1,367; of missionary teachers, 199; of members of the Church, 84,560; of members of congregations, 126,670; of members added on profession, 9,561; of baptisms, 3,803 of adults and 4,082 of infants; of Sunday-schools, 2,035, with 132,128 members; of Sunday-schools organized during the year, 333; of church edifices, 100, valued at \$3,971,031; of parsonages, 267, valued at \$350,115; amount of church debts canceled, \$122,593.

The Board of Missions for Freedmen had received \$115,503, of which \$1,585 had come from State school-funds. The permanent funds, applicable to particular endowments, amounted to \$19,120. The board employed 266 ministers, catechists, and teachers, of whom 106 were ordained ministers, and 236 were colored. Twelve churches had been organized during the year, while the whole number of churches under the care of the board was 202, with which were connected 13,754 communicants. The number of baptisms was 637 of adults and 1,051 of infants; number added to the churches on examination, 1,453; number of Sunday-schools, 201, with 14,563 pupils; number of day-schools, 89, with 9,436 pupils; of night-schools, 10, with 148 pupils; number of teachers, 184. The six higher schools returned 1,866 students, of whom 97 were studying for the ministry.

The receipts of the Board of Foreign Missions had been \$745,164, of which \$224,025 were contributed through the Woman's Board. The liabilities of the board, on account of expenditures and past indebtedness, amounted to \$803,017; so that it returned a deficit of \$51,853. The missions returned, in all, 172 American and 286 native ministers; 326 American and 731 native lay missionaries; 271 churches, 20,294 communicants, with 2,533 added during the year; 461 schools, with 24,144 pupils; 12,913 pupils in Sunday-schools; and 98 candidates for the ministry. The amount of contributions credited to the native churches was \$23,059. The missions among the Indian tribes in the United States (the returns from which are also included in the above summary) reported 15 American and 20 native ministers; 44 American and 22 native lay missionaries; 20 churches; 1,706 communicants, with 240 added during the year; 17 schools, with 685 pupils; 624 pupils in Sunday-schools; and contributions of \$3,028.

The General Assembly of the Presbyterian Church in the United States of America met in Minneapolis, Minn., May 20. This was the first meeting of the General Assembly to be held under the new system of representation, which had been adopted at the meeting of the previous year in Cincinnati. It was intended by the operation of this system to reduce the number of the members of the Assembly by 186. The increase of the year in the number and size of the presbyteries had, however, compensated to a large extent for this reduc-

tion. The Rev. Dr. David C. Marquis was chosen Moderator. The announcement was made that a majority of the presbyteries had approved the overture sent down by the previous General Assembly for amending the Directory of Worship so as to give a distinct chapter to the "Worship of God by Offerings," and for recommending a weekly offering as a part of public worship. It was agreed that the one hundredth General Assembly (that of 1888) be held in Philadelphia; that one day be specially devoted to the presentation of historical and memorial addresses by persons previously appointed; and that a centenary fund of \$5,000,000 be raised by the Church. This fund is to be devoted to the permanent endowment of the Boards of Ministerial Relief and of Aid for Colleges, in sums of \$1,000,000 and \$500,000 respectively; to the endowment of the other boards of the Church in sums sufficient to meet all the costs of administration; and to the endowment of the theological seminaries of the Church. An invitation was given to the Presbyterian Church in the United States to join in the celebration of this anniversary. The Assembly directed all of the journals representing the benevolent boards of the Church to be combined into one. The committee for investigating the affairs of the Board of Publication reported concerning defects which it had detected in the methods of keeping accounts; upon which the Assembly, passing a vote of confidence in the board, recommended the adoption of such measures as would correct the evils pointed out. The Board of Home Missions reporting a debt of \$43,000, steps were ordered to be taken for meeting the needs of the board without reducing the measure of its work. During the consideration of the affairs of foreign missions, an address of greeting was read from 1,200 members of the Church in Chee-foo, China. A resolution was adopted by the Assembly declaring it to be the duty of the Church to advance in the enlargement of the work of foreign missions, and pledging contributions to it of \$750,000 for the coming year, in addition to providing for the debt of \$57,000. Resolutions were adopted expressing unqualified condemnation of the mob violence employed against the Chinese in the United States; calling for the enforcement of treaty rights and local laws; and pledging the Presbyterian Church to try to secure fair treatment and protection to men of every race. The permanent Committee on Temperance was continued, "as the natural complement to the similar committees in presbyteries and synods, and as completing the organic bond between the Presbyterian Church and the great temperance movement"; but the work of the committee was judged not sufficiently large or extensive or the contributions from the Church liberal enough to demand a corresponding secretary giving his time to it, and it was determined to dispense with that officer.

II. Presbyterian Church in the United States.—The following is the summary of the statistics of this Church, with the statistics of 1885 appended for comparison, as they are embodied in the report of the proceedings of the General Assembly for 1886 :

DESCRIPTION.	1885.	1886.
Synods	18	18
Presbyteries.....	69	69
Ministers.....	1,072	1,085
Licentiates.....	66	67
Candidates.....	247	269
Churches.....	2,159	2,198
Ruling elders.....	6,554	6,827
Deacons.....	4,505	4,814
Additions by examination.....	9,951	11,644
Communicants.....	135,201	142,748
Adults baptized.....	2,995	3,780
Infants baptized.....	4,767	5,121
Members of Sunday-schools.....	96,155	99,665

CONTRIBUTIONS.

OBJECT.	1885.	1886.
Sustentation.....	\$47,475	\$45,676
Evangelistic purposes.....	37,490	42,044
Invalid fund.....	11,323	11,677
Foreign missions.....	60,482	67,635
Education.....	88,485	88,104
Publication.....	8,372	8,347
Tuscaloosa Institute.....	3,070	3,505
Presbyterian purposes.....	13,258	13,649
Pastors' salaries.....	563,526	591,896
Congregational purposes.....	510,098	420,097
Miscellaneous contributions	54,201	81,104
Total contributions	\$1,847,763	\$1,824,874

The Committee on Sustentation reported that it had given aid to 182 ministers, who were serving between four and five hundred weak churches. Fifty-nine evangelists had been supported under the Evangelistic fund, and sixteen colored ministers and seminary students working among the colored people had received aid from the Colored Evangelistic fund. The Education Committee had aided 142 candidates for the ministry. Forty-four church-buildings and eight houses had been erected during the year. The Committee on Foreign Missions reported 54 missionaries and 45 native helpers as laboring in the mission-fields in the Indian Territory, Mexico, Brazil, Italy, Greece, China, and Japan.

The General Assembly of the Presbyterian Church in the United States met in Augusta, Ga., May 20. The Rev. J. H. Bryson was chosen moderator. The year being the twenty-fifth year of the life of the General Assembly (it having been organized in 1861), the present meeting of the body, in pursuance of arrangements ordered by the previous Assembly, was celebrated as a quarter-centennial of the organization of the Southern Presbyterian Church. For this purpose the meeting was held in Augusta, where the first meeting had been held, and in the same church. About fifteen members of the original Assembly were present. The Rev. B. M. Palmer, D. D., who was moderator of the first Assembly, presided over the meeting. The opening address of the occasion was delivered by the Rev. Joseph R.

Wilson, D. D., who was pastor of the church at the time of the meeting of the first Assembly; the second address by the Rev. J. N. Waddell, D. D., one of the clerks of the original Assembly; and the third address by Dr. Palmer. The most important question before the Assembly was that growing out of the teaching of the Rev. Dr. James A. Woodrow, Perkins Professor of "Natural Science in Connection with Revealed Religion" in the Columbia Theological Seminary. Dr. Woodrow had been called to account by the authorities of the seminary and by the presbyterian and synodical bodies to which he was responsible, or which participated in the control of the seminary, for heresy in teaching the scientific dogma known as the doctrine of evolution, as applied to the origin of organic beings and of man, and had been relieved from the exercise of his duties as professor. His case now came up before this, the highest court of the Church, by overtures from eight presbyteries, asking the Assembly to declare, in plain language, what are the accepted interpretations of the Scriptures and of the standards of the Church on this subject. Three reports were brought in by the committee to which the subject was referred. During the discussion, which lasted through two days, Dr. Woodrow, defending himself, took the position that God has nowhere revealed the manner of the creation of man, and declared that to say it was immediate, or out of no pre-existing matter, would be adding to the Word of God, and requiring those under him to believe that which God has not spoken. He professed his full belief in the plenary inspiration of the Scriptures, and if ever Science contradicted the Scriptures, then Science must go; but where there was no contradiction, or where the Scriptures were entirely silent, then Science could continue its investigations, and belief in its teachings did not contravene belief in the Scriptures. The majority report of the committee was adopted by a vote of 137 to 13. It declares:

"To the several overtures on the subject of the evolution of man, sent up by the presbyteries, the General Assembly return answer as follows:

"The Church remains at this time sincerely convinced that the Scriptures, as truly and authoritatively expounded in our Confession of Faith and Catechism, teach that Adam and Eve were created, body and soul, by immediate act of Almighty Power, thereby preserving a perfect race unity.

"That Adam's body was directly fashioned by Almighty God, without any natural animal parentage of any kind, out of matter previously created of nothing.

"And that any doctrine at variance therewith is a dangerous error, inasmuch as by the method of interpreting Scripture it must demand, and in the consequences which by fair implication it will involve, it will lead to the denial of doctrines fundamental to the faith."

The Assembly further declared that, by the genius of Presbyterianism, they are bound to maintain a supervisory jurisdiction over the theological seminaries within the pale of this Church, as far as they affect the practice or doctrine of the Assembly's constituencies, and especially the office-bearers of the Church; that this jurisdiction must, in every case, enable the Assembly, through the proper channels of authority, to keep all such institutions free from anything inconsistent with the spirit of our system, and, of course, free from all teaching inconsistent with the Word of God, as expressed in our standards. On the strength of this deliverance the Assembly, by a vote of 65 to 25, adopted the following:

Resolved, That, whereas the General Assembly is convinced that the Rev. James Woodrow, D. D., one of the professors in Columbia Theological Seminary, holds views repugnant to the Word of God and our Confession of Faith, as appears both by his address published in the "Southern Presbyterian Review" for July, 1884, and other publications, and by his statements made upon the floor of this Assembly: Therefore, this General Assembly does hereby, in accordance with its action yesterday in regard to the oversight of theological seminaries, earnestly recommend the Synods of South Carolina, Georgia, Alabama, and South Georgia and Florida, which direct and control the said seminary, to dismiss the said Rev. James Woodrow, D. D., as professor in the said seminary, and to appoint another in his place, and to speedily take such other steps as in their judgment will be best adapted to restore this seminary to the confidence of the Church."

The clause concerning marriage with a deceased wife's sister was struck out of the Confession of Faith.

III. United Presbyterian Church of North America.—The following is the summary of the statistics of this Church as they were reported to the General Assembly in May, 1886:

Presbyteries	60
Ministers	736
Licentiates	51
Congregations	881
Elders	3,454
Communicants	91,086
Baptisms of infants	8,950
Baptisms of adults	1,516
Additions by profession	6,247
Sunday-schools	887
Officers and teachers	9,080
Sunday-school pupils	81,595

AMOUNT OF CONTRIBUTIONS.

Foreign missions	\$57,269
Home missions	85,060
Freedmen's missions	20,405
Church extension	17,082
Education	8,022
Publication	403
Assembly's fund	2,133
Ministerial relief	4,792
General contributions	49,309
Salaries	488,926
Congregational purposes	270,406
For the quarter-centennial	14,614
Total contributions	\$97,424

The Board of Church Extension reported to the General Assembly that its receipts for the year had been \$30,546, and its expenditures \$35,446. It had made appropriations to 38 churches. The assets of the Board of Publication were returned at \$112,196. Its receipts for the year had been \$70,614. The Board of Education returned \$21,585 of invested and other funds on hand. Its receipts for the year had been \$6,662. It had assisted 23 students. The receipts of the Board of Ministerial Relief were \$5,263. It had aided 30 beneficiaries. The amount of the Chinese Mission fund was returned at \$12,500. The Board of Freedmen's Missions had received \$33,643, and had expended \$33,108. It returned an indebtedness for money borrowed of \$15,255. It reported four ordained ministers and 25 teachers as laboring at four principal stations and three out-stations, the latter being connected with the college at Knoxville, Tenn. One hundred and thirty-one former and present pupils of the schools of the board had been teaching in public schools in the Southern States, with an aggregate enrollment of 7,100 pupils. The receipts of the Board of Home Missions had been \$42,910, and its expenditures \$47,582. It had granted aid to 231 stations having a reported average attendance on worship of 18,231 persons.

The receipts of the Board of Foreign Missions were reported as having been \$86,352, of which a balance of \$400 remained in the treasury at the end of the year. The board was hampered, however, by a considerable indebtedness. The missions return: In Egypt, 70 stations, 26 foreign missionaries, 8 native ministers, 180 other native workers, 23 churches, with 1,843 communicants, 65 schools, with 5,414 pupils, 62 Sunday-schools, with 2,649 pupils, and \$4,993 of contributions from native churches; in India, 61 stations, 20 foreign missionaries, 3 native ministers, and 95 other native workers, 8 churches, with 2,176 communicants, 72 schools with 3,260 pupils, 32 Sunday-schools with 1,461 pupils and \$499 of contributions. The baptisms during the year numbered 240 in Egypt and 768 in India.

The General Assembly met in Hamilton, Ohio, in May. The Rev. J. T. Brownlee was chosen moderator. Numerous appeals were presented, many of which bore upon the question of permitting the use of instrumental music in worship, concerning which the Church has been much divided since the General Assembly in 1882 repealed the prohibitions of the old law, and made the use of instruments in the congregation permissible. A convention of anti-organ men, which was held in Pittsburgh, Pa., in the fall of 1885, was represented in the Assembly by its chairman, who was allowed to present the memorial that had been adopted by it. The memorial complained of what its authors regarded as a divisive course on the part of some in the Church disregarding the action of the last and former assemblies,

and declared that "the authoritative exclusion of instrumental music from the worship of God in the United Presbyterian Church is necessary to a final and peaceful settlement of the difficulty;" asked the Assembly to order the exclusion desired; and represented that, in case of refusal on the part of the Assembly to grant their request, the memorialists would be placed "under the painful necessity of choosing between obedience to the authority of Christ and acquiescence in such refusal." The reply to the memorial, which was adopted by a vote of 139 to 97, expressed the regret of the Assembly that the trouble on account of the repeal of the law against the use of musical instruments in public worship should continue so long; and said that the repeal of the law in 1882 left all free, subject only to the law of love and the question of edification, and that any "attempt authoritatively to exclude instrumental music from the praise service in our congregations, as asked by the memorial, would be an attempt to re-enact the law already repealed." This was declared to be clearly beyond the power and authority of the Assembly, and, moreover, it would probably be regarded as "oppressive and intolerable by brethren who do not believe that such a law is warranted by the Word of God."

A proposal for a basis of union with the Associate Reformed Synod of the South was adopted, and an overture approving it was sent down to the presbyteries for ratification by them. A committee, which was appointed at the previous meeting of the General Assembly to consider the relation of the United Presbyterian Church to the Presbyterian Alliance, reported to the effect that the General Council of the Alliance, having violated its constitution by departing from the "Consensus of the Reformed Churches" on the subject of praise, so violating the position conscientiously held by the United Presbyterian and other churches; and also by admitting to its membership the delegates of a church (the Cumberland Presbyterian) which does not hold the Calvinistic doctrine, the United Presbyterian Church, while paying its proportion of the past expenses, will give notice that it will not henceforth take part in the Alliance until proper assurance is given that its position will be respected. The Assembly decided to withdraw from the Alliance.

A National Convention of United Presbyterians opposed to the action of the General Assembly, in permitting the use of instrumental music in public worship, met in Allegheny City, Pa., November 9. The meeting reaffirmed the utterances of the conventions that had been held in previous years on the same subject to the effect that those participating in it continued to protest against the removal of the prohibition of instrumental music, and that they still regarded the organ as "a corruption of worship," and not to be tolerated.

IV. Cumberland Presbyterian Church.—The following is a summary of the statistics of this Church, as they were reported to the General Assembly in May, 1886:

Presbyteries.....	118
Ministers.....	1,547
Licentiates.....	281
Candidates.....	218
Congregations.....	2,546
Elders.....	10,014
Deacons.....	8,412
Added on examination.....	14,356
Baptisms of adults.....	9,171
Baptisms of infants.....	2,279
Communicants.....	198,564
Members of Sunday-schools.....	74,576
Amount of contributions from Sunday-schools.....	\$20,189
AMOUNT OF CONTRIBUTIONS.	
Home missions.....	\$11,920
Foreign missions.....	5,886
Education (report defective).....	2,674
Publication (report defective).....	1,851
Ministerial relief.....	8,407
Church building and repairing.....	167,867
Paid pastors and supplies.....	260,886
Presbyterian purposes.....	8,922
Charity.....	7,856
Miscellaneous contributions.....	29,190
Total contributions.....	\$58,038
Value of church property.....	\$2,420,500

The General Assembly of 1885 directed the stated clerk to embody in the published minutes the statistics of the Cumberland Presbyterian Church (colored). What is believed to be a close approximation was reached from the most trustworthy reports attainable, as follows: Number of synods, 4; of presbyteries, 20; of ordained ministers, 200; of licentiates, 225; of candidates, 200; of communicants, 13,000.

The Board of Education returned its general receipts at \$219.

The receipts of the Board of Publication were returned at \$1,747, and the expenditures at \$1,559. A "History of the Church," by B. W. McDonnell, D. D., was in preparation.

The Board of Ministerial Relief reported receipts to the general fund of \$3,813, and to the permanent fund of \$2,515, and disbursements of \$2,473.

The Board of Missions had received \$9,016, of which \$5,804 had been contributed for home missions, and \$3,212 for foreign missions. Besides city missions at various points in the United States, and evangelistic work, the board sustained missions in the Chickasaw and Choctaw Nations (3 missionaries, 8 native ministers, 31 congregations, and 533 members); and in the Cherokee Nation (5 ministers, 7 congregations, and about 400 communicants). It had also assisted the School for Colored Probationers at Bowling Green, Ky. The foreign mission was in Japan, with its central station at Osaka, and returned a membership of 208, with 89 baptisms, and 93 members received during the year, 162 pupils in day-schools and 189 in Sunday-schools, an average attendance of 70 at the women's meetings, and \$565 contributed by the churches.

The General Assembly of the Cumberland Presbyterian Church met in Sedalia, Mo., May

21. The Rev. E. B. Crisman, D. D., of Texas, was chosen moderator.

The Joint Committee on Organic Union with the Methodist Protestant Church, reported that it had decided to leave the question of polity and name until after the question of union as to doctrine is determined. Time ought to be taken calmly and properly to consider the subject. The Methodist Protestant members of the committee had expressed willingness to take the confession as it is, but, in order to avoid endless explanations, they preferred to omit from it the section on preservation of believers. As the formulated result of their deliberations, the committee declared: "We have carefully examined the creeds of the two churches, and find no difference whatever, except that which might grow out of the doctrines of the 'preservation of believers' and 'apostasy,' which we agree are not essential in the Christian system, and may with propriety be left open and unexpressed in the creed of the United Church. We have also examined the formulated expressions of the creeds of the respective churches, as stated in the Confession of Faith of the Cumberland Presbyterian Church and the Discipline of the Methodist Protestant Church, and, while each sets forth the doctrines clearly, that of the Cumberland Presbyterian Church is more full and systematic, and we could confidently recommend it to the favorable consideration of a joint convention of the two churches, if such should be held." The committee had not felt at liberty to proceed further for the present with the work of organic union, than to ascertain that no doctrinal difficulties stood in the way of it, nor material differences in polity. The General Assembly resolved by a large majority:

Whereas, The report of the joint convention of the committees on organic union, appointed by the General Assembly of the Cumberland Presbyterian Church, and by the General Convention of the Methodist Protestant Church is before us; and

Whereas, The matters involved are of great consequence to the kingdom of God, and should not be decided without deliberation; and

Whereas, The Methodist Protestant General Conference does not meet until May, 1888, and hence there is no need of haste; Therefore,

Resolved, That the said report be referred for action to the next meeting of this General Assembly at Covington, Ohio, May, 1887.

V. Presbyterian Church in Canada.—The Committee on Statistics of this Church made returns to the General Assembly in June, which are summarized as follow:

Synods.....	5
Presbyteries.....	39
Pastoral charges.....	773
Churches, or stations.....	1,648
Families.....	71,911
Communicants.....	127,611
Added on profession during the year.....	10,555
Baptisms of adults.....	1,003
Baptisms of infants.....	9,995
Elders.....	4,770
Other office-bearers.....	7,767
Teachers in Sunday-schools.....	11,761
Pupils in Sunday-schools.....	100,937

AMOUNT OF CONTRIBUTIONS.	
Congregational purposes	\$1,260,706
Colleges.....	46,496
Home-mission fund	82,509
Augmentation fund	88,077
French evangelization	19,956
Foreign missions	43,532
Aged and infirm ministers.....	7,890
Widows and orphans	6,376

The General Assembly of the Presbyterian Church in Canada met in Hamilton, June 9. The Rev. J. K. Smith was chosen moderator. The report on home missions showed that \$37,000 had been spent on missionary work proper, \$18,500 of it in the Northwest; in addition to which \$31,000 had been given for the augmentation of stipends in weak congregations to the minimum amount of \$750 per annum, with a manse; \$5,640 had been raised and expended by college missionary associations; and \$579 had been contributed specially for a mission to lumbermen in the woods during the winter; making the whole amount spent in work relative to home missions \$74,220. The missions comprised 351 congregations and mission settlers, 5,119 families, 4,769 communicants, 145 Sunday-schools with 5,727 attendants upon them, 89 churches, and 20 manses. The Church and Manse Building fund had during three years appropriated \$38,393 in aid of the erection of 75 buildings, having a total value of \$91,710. The contributions during the year to the work of the Board of French Evangelization, were returned at about \$30,000. The Board of Foreign Missions reported that its estimates for the ensuing year's work were for \$71,000. The mission to the Indians in the Northwest was still expanding. Work had been begun during the year on five new reserves, and three new schools had been opened; thirteen reserves were now occupied. The Church has also missions to the coolies in Trinidad and Demerara, to the New Hebrides Islands, in Central India, and in Formosa. In Formosa more than 1,100 converts had been baptized, and four new churches had been erected with money paid by the Chinese Government as indemnity for the destruction of chapels during the recent Franco-Chinese war. A resolution was passed in the Assembly representing to the Government of Canada "the imperative necessity of at once canceling all appointments of agents, in its relations with the Indians of the Northwest, who are known to be tyrannical, unjust, or immoral, and of filling their places with men of integrity, sobriety, and purity." A report from a Committee on Co-operation with other churches in fields where no one denomination is strong enough to sustain itself, was sent down to the presbyteries. Steps were taken for inviting the co-operation of the American churches in labors for the suppression of unnecessary Sunday traffic and labor on railways. A proposal to consolidate the six theological seminaries, which had been in the previous year referred to a committee was dismissed. An overture for removing the restrictions against marrying

a deceased wife's sister was sent down to the presbyteries. A proposition to introduce term-service in the elderships was rejected.

VI. Church of Scotland.—The General Assembly of the Church of Scotland met in Edinburgh, May 20. The Rev. John Cunningham, of Crieff, was chosen moderator. The report on the statistics of Christian liberality showed that the entire amount of the contribution for the year had been £311,378, against £304,077 in 1884, and £316,480 in 1883; £63,197 had been paid for seat-rents. The capital of the Aged Infirm Ministers' fund was returned at "not far short of £20,000." A legacy of £30,000 had been left to the Church, the interest of which is to be applied to the relief of aged and infirm ministers, and the provision of holiday rests for ministers in feeble health. The Colonial Committee reported that it had given out of its funds £9,116 since 1870 in aid of Continental chaplaincies, and £3,586 since 1879 for army and navy chaplaincies.

The report on Sunday-schools gave returns of 2,020 schools, with a total attendance of 206,318, and an average attendance of 161,-384 children and 19,266 teachers.

The income of the Home-Mission Committee had been £10,005, besides which £14,644 had been brought forward from the previous year. The expenditure had been £11,014. Sixty-eight stations had been supplied and 71 mission churches aided. The income for the mission to the Highlands had been £1,485.

The Committee of the Jewish Mission reported concerning educational work at Constantinople, Smyrna, Salonica, Beyrouth, and Alexandria. A grant of £1,000 had been received from the Beaconsfield Memorial fund to establish a hospital at Smyrna in memory of the late Prime Minister.

The Foreign Mission Committee returned an income of £22,051, and an expenditure of £24,598.

The Committee on Church Interests presented a report narrating the steps which it had taken since the last Assembly in regard to the movement for disestablishment. The committee had working committees in 1,000 out of the 1,300 parishes of the Church, which could be set to work if the interests of the Church were threatened. It considered that the position of the Church had improved. The Assembly approved the policy of the committee, and recommended that the organization for Church defense throughout the country be maintained and strengthened.

A deputation was received from the Irish Presbyterian General Assembly, with which no intercourse had been had for thirty years. The chairman of the deputation, the Rev. Dr. J. Y. Killen, of Belfast, referred in his address to the Government's proposed Irish legislation, and said that he believed that the passing of the Home-Rule Bill would lead to the establishment of Roman Catholic ascendancy and the extinction of Protestantism over the greater

part of Ireland. The Assembly, by resolution, expressed a warm interest in the cause of Protestantism in Ireland, with the hope that the Almighty would so order events that the differences and trials of that country might be speedily removed. A deputation was appointed to attend the next meeting of the Irish Assembly. A motion was approved conveying to the other churches a renewal of the Assembly's sense of the evils of disunion, and an assurance of its readiness to promote union on the basis of the establishment; and also expressing a readiness to do all that was possible to remove doubts from the minds of Presbyterian brethren at present dissociated from the Church, and its desire that the Presbyterian churches should make full recognition of each other as Christian churches in their work both at home and abroad. The Assembly also enjoined the members of the Church "to maintain, both in public and in private, a spirit of Christian charity, and to abstain from all such expressions as might estrange or irritate members of other churches." An overture was adopted to the effect that it should be competent for the congregation of a vacant parish to elect an ordained minister of any other Presbyterian Church in the United Kingdom.

VII. Free Church of Scotland.—The General Assembly of the Free Church of Scotland met in Edinburgh, May 20. The Rev. Dr. A. Somerville, of Glasgow, was chosen moderator. The report on the finances of the Church showed that for the year ending March 31, 1886, the whole amount of the sums raised for the various objects of the Church was £594,-050, against £626,028 reported in the previous year.

The report on Sunday-schools showed the number of schools, congregational and missionary, to be 1,939, with 18,104 teachers and 202,326 pupils. The income of the Church Extension Building fund had been £2,435, making the total income, during the nine years of its existence, £86,596. Grants had been passed to the extent of £50,708. The year's contributions for the Sustentation fund had been £171,900. The dividend was again fixed at £160.

The entire revenue of the Foreign Mission Committee for the year had been £97,229. This was the largest amount reported for one year in the history of the Church. Adding the sums contributed for the conversion of the Jews on the Continent and in the colonies, the total missionary revenue of the Church had been £112,009.

The Committee on Church and State presented a report relating mainly to the progress of the agitation for disestablishment and its proceedings with reference thereto. The Assembly approved the course which the committee had pursued in opposing Mr. Finlay's bill, and advised that the agitation on disestablishment be brought to an end. To the

communication from the Assembly of the Kirk inviting to union on the basis of the establishment, the Assembly replied that it reciprocated the desire that Presbyterian churches should make full mutual recognition of one another as Christian churches in their work both at home and abroad; referred with regard to the more important part of the Kirk Assembly's minute to the reply sent on a former occasion to a communication of the same tenor which remained unanswered; directed attention to the resolution in favor of disestablishment recently passed by the Free Church Assembly; and expressed readiness to enter upon friendly negotiations if the Established Church could see its way to treat the points of difference between its communication and the resolution just cited as open for discussion. It was agreed to remit to the Assembly's arrangements committee to receive any communications which might be sent by the committee of the Established Church; and that the committee, in any action it might take thereupon, should be directed to have respect to the resolutions of the Assembly.

The case of Dr. Stuart Muir, who was charged with entertaining doctrines subversive of the principles of the Church, was brought up for final settlement. Three of the charges out of four against Mr. Muir had been proved, but the Assembly, declining to proceed to the extreme sentence of deposition, pronounced against him a suspension *sine die* from the ministry. In response to a communication from the General Assembly of the Presbyterian Church in Ireland respecting the situation in that country, the Assembly declared that, while it judged it right to refrain from pronouncing as an assembly upon the matter, it heard the statements made with great concern and sympathy. The Assembly resolved to petition Parliament in favor of the "Crofters' Bill."

VIII. United Presbyterian Church of Scotland.—The Synod of the United Presbyterian Church met in Edinburgh, May 3. The Rev. Dr. Logan Aikman, who had been chosen by the previous Synod to be moderator for the year, having died in the interim, the Rev. Dr. Duff, Professor in the Theological Hall, was elected moderator. The statistical reports showed the number of congregations connected with the Synod to be 557, with which were connected 181,146 members, or 1,255 more than had been returned in the previous year. The number of baptisms during the year had been 9,755. The total congregational income was returned at £245,637, and the contributions for missionary and benevolent purposes had been £79,179. The gross income for foreign missions had been £39,673, or £354 above the income of 1884. The expenditures, including the amount spent on Continental and colonial work, had increased by nearly £2,000. Five thousand pounds a year more than the present income were required to carry on with effi-

cency the work that had been undertaken. The total educated agency now in the mission field consisted of 583 persons; the whole number of communicants at the mission stations was 12,177; and the number of pupils in mission schools was 13,197. A resolution was passed by the Synod congratulating the Church in Jamaica on having reached in February, 1886, the fiftieth anniversary of the formation of the first Jamaica Presbytery. The contributions to the Zenana mission had risen from £4,836 to £5,077. The Board of Continental and Colonial Missions returned an income of £1,500.

The report of the Committee on Disestablishment expressed regret that Mr. Gladstone had preferred Irish to Scottish claims for legislation, and maintained that the movement in favor of disestablishment was stronger than any man or combination of men. The Premier had done what he could to put the question out of sight, but even he had not succeeded. Their policy was to keep disestablishment forward, and let all parliamentary candidates understand that this question was the predominant one in the minds of the voters of this Church. The Synod renewed its protest against the system of giving support from state funds to denominational training-colleges. In view of the fact that the Duke of Hamilton had refused a site for a United Presbyterian church in Arran, a resolution was adopted expressing the sense of the Synod of the "wrong use" which it considered the duke had made of his powers as a landlord. Transcripts of this action were ordered to be sent to the Duke of Hamilton and to the Secretary of State for Scotland. Representations were made during the discussion of the subject of "Hindrances to the Progress of the Church, especially in the Agricultural Districts"; that dissenters frequently suffered oppression and boycotting from their landlords on account of their principles; in consequence of which a resolution was passed renewing the protest of the Synod against any interference with the inalienable rights of every man to choose his own church connection. A committee was appointed to note cases of oppression, and take action with regard to them. A proposal for the formation of a Young Men's and Young Women's Guild in connection with the Church was approved and sent down to the presbyteries. A scheme providing for the introduction of members and adherents of the Church to the congregations in places to which they may remove, was adopted. Congregations were authorized to select an elder to represent them in the Synod from any session in the Church, instead of being confined to the sessions of their own presbytery.

IX. Presbyterian Church in Ireland.—The General Assembly of the Presbyterian Church in Ireland met in Belfast, June 7. The Rev. Robert Ross, of Londonderry, was appointed moderator. The statistical report showed that

the number of congregations was 556, and that £168,497 had been raised during the year for church purposes. The Sunday-School Committee returned the number of Sunday-schools as 1,051, with 9,587 teachers and 78,490 pupils. The total income of the Sustentation fund had been £25,108, and the supplemental dividend to ministers had been raised to £16. The income for foreign missions was £12,032, of which nearly £2,500 had been subscribed in India.

Regarding the use of instrumental music in worship, the Assembly recommended that the advocates of "liberty" make an effort to persuade those who have instruments to cease using them; that the advocates of "purity of worship" be urged to dissolve their associations; and that the question be not raised again for three years. In respect to the state of the country, the Assembly reaffirmed the decisions it had made at a special meeting previously held, which declared the need of a satisfactory settlement of the land question; expressed a desire for the removal of all grievances in the government of the country; deprecated the violence and outrages which had taken place, and all abusive language and sectarian strife; and protested against such legislation as was set forth in the Home-Rule Bill, which had been defeated in Parliament. After the adjournment of the Assembly, its Committee on the State of the Country decided to send the Assembly's resolutions to the different congregations, accompanied by the recommendation that members of the Presbyterian Church "give their support at the ensuing election to candidates who pledge themselves to oppose any legislation tending to imperil the legislative union between Great Britain and Ireland, or to interfere with the unity and supremacy of the Imperial Parliament."

The sittings of the General Assembly were resumed October 5, when the proposed amendments to the code of discipline were considered, and professors were elected to fill the vacant chairs in the Assembly's college at Belfast, and in Magee College at Derry.

X. Presbyterian Church in England.—The statistical reports of this Church, presented to the Synod in April, showed that it numbered 286 congregations, with 61,021 communicants, against 59,690 communicants returned in the previous year. The number of Sunday-school pupils was 75,295. The entire income of the Church had been £216,106, or £755 per congregation. The income for missions was returned at £17,800. The society had more than twenty medical and other missionaries in the field (in China), together with several woman-missionaries and native pastors and evangelists, and nearly 6,000 church-members.

The Synod of the Presbyterian Church in England met in London, April 26. The Rev. Dr. David MacEwan was chosen moderator. A declaratory statement, which had already been approved by the presbyteries, was rati-

fied, as expressing the sense in which the Church receives and understands the Westminster Confession of Faith. The committee which had had charge of this subject was directed to continue the preparation of a Compendium of Doctrine—a "working creed" which will contain about twenty articles. A committee was appointed, for the revision of the "Westminster Directory for Public Worship," and the preparation of forms of service adapted to special occasions, the drafts of which may be laid before the next Synod. A committee on the Synod's relations with the Congregational Union reported that it had tried to assure Congregational brethren that there existed no desire in the Presbyterian Church to reclaim or recover old chapel properties which had long been in the use of another denomination.

Conference of Presbyterian Churches.—A conference of representatives of the various Presbyterian Churches of the United Kingdom, called under the auspices of the General Presbyterian Alliance, was held in Edinburgh, October 6. Its purpose was to consider various questions connected with union and co-operation in foreign missions, which were suggested in the "deliverance" of the Council of the Alliance, at Belfast, in June, 1884. Mr. Hugh M. Matheson, of London, presided. The following resolutions were agreed to:

1. That it is desirable that mission churches should be encouraged to become independent of the home churches—i. e., self-supporting and self-governing—self-government naturally following upon self-support.
2. That it is desirable that churches organized under Presbyterian order, and holding the reformed faith, should be placed under a presbytery within territorial boundaries suitable for effective government, and that such presbytery, wherever constituted, should, so far as practicable, include all the Presbyterian Churches within the bounds of whatever branches of the European or American churches existed.
3. In the incipient stages of the native church it is most desirable that the foreign missionaries should be associated with the presbytery, either as advisers only or as assessor members with votes.
4. It is undesirable that presbyteries of native churches should be represented in supreme courts at home, the development and full organization of independent native churches being what is to be aimed at, whether these are founded by a single foreign church or by two or more such churches.

PROTESTANT EPISCOPAL CHURCH IN THE UNITED STATES. This Church, which is the legitimate successor of the Church of England in America during colonial times, acknowledges, in the preface to the Prayer-Book, its indebtedness to the parent Church, and is in communion with the Anglican Church throughout the British Empire and elsewhere. Its position and growth, during the century just past, warrant the conviction that, as it presents the fundamental truths always held in the Christian Church from the beginning and set forth in the ancient creeds and liturgies, so it is well adapted to the needs of the American people in a free republic, and has before it a vast field of usefulness in the second century.

of its existence upon which it has now entered. The year 1886 is more than ordinarily interesting in the history of the Episcopal Church, because of the meeting of the General Convention; of the earnest efforts put forth to aid in securing, if possible, a reunion of divided Christendom; and of the completion, in part, of the important work that was entered upon five or six years ago, for the purpose of enriching the Liturgy, and enlarging and improving, for congregational use, the public services of the Church. The sources of information, in preparing this article, are the Journal of the General Convention of 1886, Pott's "Church Almanac," and Whittaker's "Protestant Episcopal Almanac." The following table presents a summary of statistics of Church progress from 1883 to 1886:

DIOCESES.	Clergy.	Parishes.	Baptisms.	Confirmations.	Communicants.
Missouri.....	54	52	2,076	1,886	6,596
Nebraska.....	86	24	924	549	2,215
New Hampshire.....	83	18	683	512	2,233
New Jersey.....	102	84	8,707	2,000	9,781
New York.....	331	200	18,758	11,130	44,256
North Carolina.....	57	44	1,808	1,051	3,451
North'n New Jersey	89	67	4,945	2,764	11,667
Ohio.....	66	71	2,984	1,888	7,801
Pennsylvania.....	221	129	12,088	6,582	31,580
Pittsburg.....	62	60	3,823	2,065	7,298
Quincy.....	25	27	924	456	2,862
Rhode Island.....	55	47	2,479	1,395	7,828
South Carolina.....	48	60	1,602	1,024	5,142
Southern Ohio.....	52	46	1,734	1,471	6,722
Springfield.....	40	21	1,141	828	3,081
Tennessee.....	40	29	1,528	1,149	4,446
Texas.....	26	31	1,342	683	2,782
Vermont.....	34	42	1,058	714	8,801
Virginia.....	149	140	4,231	3,959	15,381
Western Michigan.....	26	27	1,014	597	8,151
Western New York.....	109	96	4,173	2,985	11,321
West Virginia.....	22	27	768	555	2,485
Wisconsin.....	64	40	1,443	1,161	5,000
MISSIONARY JURISDICTIONS.					
Colorado and Wyoming.....	89	11	1,824	608	2,367
Idaho and Utah.....	12	2	701	229	886
Montana.....	12	2	467	199	2,536
Nevada.....	5	5	496	125	343
New Mexico and Arizona.....	6	6	140	84	167
North Dakota.....	15	15	275	162	661
Northern California.....	15	11	688	372	867
Northern Texas.....	12	13	545	306	1,639
Oregon.....	20	20	613	316	1,217
South Dakota.....	28	30	1,424	640	4,528
Washington.....	18	12	432	212	582
Western Texas.....	14	12	551	338	1,367
Cape Palmas.....	18	..	399	158	588
Japan.....	10	..	209	77	252
Shanghai.....	24	..	281	188	359
Total.....	3,760	2,939	155,425	98,049	424,424

GENERAL COMPARISON.

DATE.	Numbr' of dioceses.	Number of clergy.	Increase in clergy.	Number of communicants.	Increase in communicants.	Population of U. S.
1790..	7	190	..	..	..	8,929,214
1800..	8	210	10	11,975	..	5,308,483
1810..	9	218	3	..	..	7,239,881
1820..	13	381	50	..	..	9,633,822
1830..	20	524	60	30,939	..	12,866,020
1840..	25	1,059	100	55,427	75	17,061,458
1850..	29	1,589	50	87,794	56	23,191,576
1860..	33	2,156	80	146,583	66	31,443,921
1870..	40	2,988	40	220,000	50	38,558,371
1880..	48	4,492	21	344,759	56	50,152,866
1886..	49	3,760	10	424,424	25	56,000,000

PROGRESS BY DIOCESES.

DIOCESES.	Clergy.	Parishes.	Baptisms.	Confirmations.	Communicants.
Alabama.....	81	51	1,075	949	4,216
Albany.....	135	111	4,779	3,125	14,340
Arkansas.....	13	16	488	310	1,364
California.....	65	25	2,276	1,295	4,892
Central New York.....	94	109	4,220	2,582	13,154
Central Pennsylvania.....	103	90	3,858	2,327	8,260
Chicago.....	75	48	3,656	2,169	9,600
Connecticut.....	191	144	5,984	3,637	22,354
Delaware.....	29	27	795	385	2,368
East Carolina.....	23	37	1,046	540	2,532
Easton.....	33	38	1,492	861	2,797
Florida.....	36	23	985	293	2,390
Fond du Lac.....	30	18	1,097	685	2,592
Georgia.....	39	34	1,471	1,039	4,822
Indiana.....	33	41	1,548	1,153	4,812
Iowa.....	49	58	1,783	1,208	5,004
Kansas.....	35	23	505	257	2,258
Kentucky.....	47	34	1,830	1,381	5,215
Long Island.....	113	71	6,575	4,013	18,188
Louisiana.....	83	44	1,566	1,066	4,839
Maine.....	29	22	957	580	2,649
Maryland.....	168	128	1,810	4,864	24,926
Massachusetts.....	179	119	7,578	4,167	22,268
Michigan.....	76	64	4,430	2,482	10,488
Minnesota.....	89	71	2,564	1,595	6,832
Mississippi.....	85	36	950	673	2,311

The General Convention.—This body, acting as the supreme legislature in the American Episcopal Church, meets triennially in the place appointed from time to time. It assembled this year in the city of Chicago, October 6, and continued in session until October 28 inclusive. There were between fifty and sixty of the bishops present, and clerical and lay deputies from all the forty-nine dioceses, and delegates from twelve missionary jurisdictions. The Convention consists of two houses, which hold sessions as distinct bodies, viz., the House of Bishops and the House of Clerical and Lay Deputies; but concurrent action is necessary to any valid legislation. In addition to regular business requiring attention, such as

action on proposed amendments to the Constitution and Canons, reports of standing and special committees, the state of the Church, education and progress, etc., some of the chief features of interest to church people at large this year were the report of the committee on the enrichment of the Liturgy; the action on this report and its recommendations; the changes and additions actually accomplished; the prominence given to the discussion of the question of a reunion of Protestant Christendom in America; the several steps suggested and taken in this direction; recommendations and action in regard to the judicial system of the Church; proposals as to a suitable name or designation for the American Episcopal Church, etc. The proceedings of the two houses, in respect to the important matters connected with the Book of Common Prayer, are presented consecutively in "Supplementary Journals," covering 234 pages, and bound up with the "Journal of the General Convention" of 1886.

Domestic and Foreign Missions.—The Board of Missions consists of the bishops of the Church, of the members of the House of Deputies, of the delegates from the missionary jurisdictions, and of the Board of Managers. For facilitating business and securing full attendance, it holds its sessions at the same time and place as the General Convention. A Missionary Council is appointed at every triennial meeting of the General Convention, comprising all the bishops, an equal number of presbyters, and an equal number of laymen. It meets annually (except in the years when the Board of Missions meets), and is charged with taking all necessary action in regard to missionary work of the Church. The Board of Managers is selected from the Missionary Council, comprising the presiding bishop as president, and fifteen other bishops, fifteen presbyters, and fifteen laymen. It is charged with the management of the general missions of the Church, and, when the Board of Missions is not in session, exercises all the corporate powers of the Domestic and Foreign Missionary Society. All other bishops of the Church, together with the secretary and treasurer of the Society and of the Board of Managers, are *ex-officio* members of the Board of Missions, but have not the right to vote. The board divides its work between a domestic committee and a foreign committee, with headquarters in New York.

Domestic Missions.—Sept. 1, 1885, to Sept. 1, 1886, missionaries (13 missionary jurisdictions and 30 dioceses): bishops, 14; other clergy (white, colored, Indian), 421; teachers, other helpers, etc., 66; total, 501. The financial condition was as follows:

Offerings, legacies, etc.....	\$189,264 53
Specials.....	29,508 98
Legacies for investment.....	102,691 88

Total..... \$321,465 34

Expenditures (13 missionary jurisdictions and 30 dioceses).....	\$116,040 17
Missions among Indians, etc.....	58,714 71
Office and other expenses.....	16,793 11
Balance in hand.....	24,885 08

Total..... \$216,433 07

Foreign Missions.—Sept. 1, 1885, to Sept. 1, 1886, missionary bishops, 4; other clergy (white and native), 58; teachers, helpers, etc., 260; total, 318. The financial condition was as follows:

Offerings, legacies, etc.....	\$150,912 12
Specials.....	114,755 58
Legacies for investment.....	102,000 00

Total..... \$367,667 70

The Woman's Auxiliary to the Board of Missions renders important and efficient aid in all the departments by means of parochial, city, county, and diocesan associations of ladies, formed for the purpose of raising money, preparing and forwarding boxes to missionaries and mission stations, and in various other ways giving help to the missions of the Church.

Money raised for domestic, foreign, freedmen, and other missions.....	\$82,918 70
Boxes for the same (2,629 in number), value.....	150,818 06

Total..... \$238,726 76

The American Church Missionary Society (also auxiliary to the Board of Missions) has employed during the year, in 16 dioceses and missionary jurisdictions, 32 missionaries. The financial condition was as follows:

Receipts from parishes, etc.....	\$10,120 89
Receipts for foreign missions.....	448 64
Balance in treasury Sept. 1, 1886.....	8,397 40

Total..... \$18,966 48

A number of boxes of clothing were sent to the missionaries, in value.....	3,000 00
The Society has also in property, securities, etc.	108,425 00

The Mexican League, in aid of church work in Mexico, reports that during the past three years (September, 1883, to September, 1886) it has contributed in both general and special, through the Foreign Committee, \$27,713.64. It has also published reports, leaflets, circular letters, etc. Some of the difficulties connected with the affairs of the Church in Mexico have been removed, and greater confidence is felt in the matter and in the progress of the work.

The American Church Building Fund Commission, established in 1880, continues to do a good work. It has still in view to create a fund of not less than \$1,000,000, in order to aid in building new churches, and it hopes at no distant day to secure that amount. Contributions, however, come in slowly, and the Commission does the best that it can with the means at command. During three years (1883-'86) a hundred churches in various parts of the country have applied for help. This has been extended, both in gifts and loans, in sums usually not exceeding \$500. The amount of the permanent fund, Sept. 1, 1886, was \$68,493.91.

The Society for promoting Christianity among the Jews (also auxiliary to the Board of Missions) reports steady and on the whole encouraging progress. The Society has missionaries at work

in nine of the large cities. There are five missionary schools and five industrial schools, and over 250 of the parochial clergy co-operate in local activities. The entire work reaches the Jews in 226 cities and towns throughout the United States. New publications, some 15,000 in number, have been issued; former publications have also been largely distributed, and the Holy Scriptures and the Prayer-Book have been circulated in English, Hebrew, German, and other languages.

Contributions, specials, etc. (Sept. 1, 1885, to Sept. 1, 1886).....	\$13,790 86
Burr legacy and interest.....	10,974 45
Balance from old account.....	1,101 01
 Total.....	 <u>\$25,866 32</u>
 Expenditures for schools, salaries, publications, etc.,	 <u>\$12,870 26</u>
Real-estate account, etc.....	5,764 39
Balance to new account.....	7,781 67
 Total.....	 <u>\$25,866 32</u>

General Conditions of Church Affairs.—Since the General Convention of 1883, five of the bishops have died—viz., Bishop R. H. Clarkson, of Nebraska; Bishop B. B. Smith, of Kentucky, the presiding bishop; Bishop H. C. Lay, of Easton; Bishop J. F. Young, of Florida; and Bishop C. F. Robertson, of Missouri. Two missionary bishops—viz., D. S. Tuttle and O. W. Whitaker—have been transferred to organized dioceses. Nine out of the ranks of the presbyters have been consecrated bishops—viz., W. D. Walker, Missionary Bishop of North Dakota; A. A. Watson, Bishop of East Carolina; W. J. Boone, Missionary Bishop of Shanghai; N. S. Rulison, Assistant Bishop of Central Pennsylvania; W. Paret, Bishop of Maryland; G. Worthington, Bishop of Nebraska; S. D. Ferguson (colored), Bishop of Cape Palmas, Africa; E. G. Weed, Bishop of Florida; and M. N. Gilbert, Assistant Bishop of Minnesota.

The Committee of the General Convention on the State of the Church make thankful note of various evidences of healthy growth, but at the same time point out for the benefit of the

laity, who alone can remedy the defect, the general inadequacy of salaries for the clergy, and especially the great lack of provision for aged and infirm ministers of Christ. They also deplore the falling off in number of candidates for orders, and term it "the most discouraging feature of the Church to-day." There ought to be, instead of 344 (the number reported), at least 730, in order to preserve the proper proportions between the increase of communicants and the increased spiritual needs consequent thereupon. The committee "urgently appeal to all the members of the Church that boys and young men and devout men in business pursuits be alike exhorted to this holy work." Special mention is made of several organizations in the Church as well calculated to do good service, viz., the Girls' Friendly Society, the Brotherhood of St. Andrew, the Church Temperance Society, and the White Cross Society. The two latter seem to be greatly needed, since "the twin monsters of evil which are sapping our homes and our people are intemperance and impurity, and these can be conquered only by the help of God."

In view of the wide-spread and deep interest manifested of late years in the subject of Christian reunion among Protestants, the closing paragraph of the committee's report may here be quoted: "This Church, Catholic, Apostolic, and American, presents her corporate life, her ministry, her institutions, her charities, to all the people of this land, irrespective of race, color, or antecedents. For thirty-five years at least, more than half (many think a much larger proportion) of those annually confirmed have been not of churchly parentage. Absorption has gone on beyond the power of assimilation; yet this Church so longs for organic Christian unity and the reunion of Christendom that she has at this General Convention shown herself willing to make any overtures which do not comprise essentials, in furtherance of the prayer of Him who is head over all things to the Church, which is his body, that his people may be made perfect in one."

Q

QUEBEC, PROVINCE OF. Exports.—The value of goods exported from the Province of Quebec during the fiscal year ending June 30, 1885, was \$37,222,943; to which may be added coin and bullion exported to the United States, \$2,018,266, and estimated amount short returned at inland ports and exported to the United States, \$363,242.

Inundations.—In April the jamming of the ice in the St. Lawrence occasioned the most extensive and disastrous floods that the city of Montreal has ever known. Preparations made for protecting the city against an ordinary spring flood were altogether inadequate in the

presence of a rise in the river to twenty-six feet above its summer level. On this occasion the water rose two feet six inches higher than in the great flood of 1861. Property to the value of millions of dollars was destroyed, and the sufferings of the poor people resident in the low-lying districts were very great. The cause of the trouble is the jamming of the ice below the city of Montreal, which is attributed to the breaking up of the lake ice above the city before the breaking up of the ice in the river below. An engineer's commission appointed by the Dominion Government recommended that an attempt be made to prevent

the "ice-bridge" from forming below Montreal by the use of steamboats built for the purpose of breaking up the ice. The grant of money for this scheme arrived too late for the experiment to be tried this year.

Politics.—The session of the Quebec Legislature of 1886 was chiefly remarkable for the discussion of a Federal issue with which the Provincial Legislature had no legitimate concern. Advantage was taken by the Rouge party of the odium incurred in the Province of Quebec by the Conservative Government of the Dominion, through allowing the execution of Louis Riel to place the dominant party in the province, also Conservatives, in an awkward dilemma. A motion censuring the Dominion Government was proposed in the Legislative Assembly, and the Quebec Conservatives were thus offered the choice of dealing a serious blow at their political friends in Ottawa, or running directly counter to the intensely excited feelings of the masses of French-Canadian electors. The Provincial Government took the ground that the matter was *ultra vires* of the Quebec Legislature, and by a vote of 41 to 18, taken on May 7, the House sustained the Government. On June 26 the Hon. Honoré Mercier, leader of the Opposition, issued a manifesto to the electors of the province, declaring the autonomy of the Canadian provinces to be in danger, and defining the policy of the National party. The programme was as follows:

1. The energetic maintenance of the principle of provincial autonomy against all attacks, direct or indirect.
2. Decentralization to the utmost possible degree, and extension of municipal powers.
3. The maintenance of all guarantees, religious and other, upon which our present system of public instruction is based. The giving of a practical direction to education leading up to agricultural, mechanical, and technical pursuits.
4. Full respect and protection for all the rights of minorities.
5. Immediate adoption of energetic and practical means for the amelioration of the financial situation in the province, and the preventing of direct taxation.
6. Economy of the public moneys, and suppression of those expenditures in behalf of immigration and administration that are not strictly indispensable to the public service, in order to augment, by so much as is thus saved, the grants devoted to colonization. Reform of that doctrine of ministerial accountability which has been the cause of so great abuse.
7. The amendment of the crown-land laws and regulations in such a manner as to be favorable to the colonist and to the protection of our forests.

8. Electoral reform in the broadest sense, in order to give the franchise to all classes of society, and more especially to teachers, farmers' sons, and laborers, to clerks and students, etc.

9. Reform in the law relating to master and servant, and a better act regarding the employment of women and children.

10. Reform in the jurisprudence, in order to render litigation shorter and less costly.

The Legislature was dissolved, and the elections, which were held on October 14, after a vigorous canvass, proved disastrous to the Government. When the appeal was made to the country, the Government was supported by forty-five members in a House of sixty-five, and, with the exception of a single session in 1878, the Conservatives had been in power in the province ever since confederation. The Government refused to resign until defeated in the House, and refused to summon the Legislature earlier than in the ordinary course. Extraordinary pressure was brought to bear upon the Government, which was accused of clinging to office after it had lost the confidence of the country, in order that it might be in a better position to aid the Dominion Government in the Federal elections. Finally, it became evident that Mr. Mercier could command a majority of about ten on a division in the Assembly.

Labor Movement.—In the Province of Quebec, as elsewhere on this continent, the Knights of Labor have lately become numerically strong, and command the respect of politicians of all parties for the "labor-vote." In the provincial elections, labor candidates were brought out in each of the three parliamentary divisions of Montreal, but they were all defeated. Undoubtedly the most serious obstacle to the progress of the Order of the Knights of Labor in Quebec is the hostility of the Roman Catholic Church. The order was condemned in 1884; but an appeal was made to Rome, and modifications were made in the constitution of the society, with a view to securing from the Roman Catholic Church the same toleration for the Knights in Quebec that they enjoy in the United States. On July 31, 1886, Cardinal Taschereau, the new Archbishop of Quebec, issued a circular announcing that the Congregation of the Propaganda had maintained its judgment of 1884, and that therefore the Order of the Knights of Labor in Quebec was still one of the secret societies membership in which has always been absolutely forbidden to Roman Catholics.

R

RAILROAD ACCIDENTS, LAW OF. At the opening of the year 1886, 127,730 miles of completed railroad were in existence in the United States. The stock of the companies owning or operating these roads was \$3,817,697,832; the funded debt was \$3,765,727,066; the unfunded debt was \$259,108,281; and the

current debt was \$231,040,215, making a total liability or investment of \$8,073,578,394. The number of locomotives in use on these railroads at the opening of 1886 was 61,937, and the number of cars in use at the same period was 829,353. The total earnings were \$772,568,833; the amount of interest paid was

\$189,426,035; and the amount of dividends was \$77,672,105.

A vast amount of railroad property, goods in transit, and many lives, are lost every year by accidents on railroads; but it is almost impossible to obtain full and true data of the loss thus occasioned; for railroad companies are by no means willing to publish such evidences of bad management or carelessness. The authority of the United States Government, however, succeeded in eliciting from these corporations certain information which was compiled for the census. From this source it appears that in 1880 there were 8,215 accidents, of which 31 per cent. caused death; 678 accidents happened to passengers, of which 21 per cent. caused death; 4,540 accidents happened to employés, 20 per cent. causing death; 2,923 accidents happened to persons other than passengers or employés, 50 per cent. causing death. The rate of accidents to employés is about 1 employé out of every 70 each year. There were paid out during 1880 by railroad companies \$1,377,978 as compensation for injuries.

Railroads are of comparatively recent origin, and, consequently, when they were first established, there was no specific law upon their special duties and privileges. It became necessary, therefore, to apply to them the rules governing similar interests, such as wagoners, stage-coaches, and other transporters of goods and passengers, known in law as common carriers, with such modifications as the new features of railroading necessitated. These modifications depended largely upon the idiosyncrasies of different judges, many of whom were popularly supposed to be partial to railway corporations. As a consequence, the law of railroads, as to-day laid down in books and stated by courts, is a jumble of legal joiner-work, made up of fragments of pre-existing law and the notions of individual judges, and by no means overlaid by principles of justice.

To render a railroad corporation liable for an injury to an individual, two things are necessary: that the company shall be guilty of some negligence, which mediately or immediately produced or enhanced the injury; and that the passenger shall not have been guilty of any want of ordinary care and prudence, which directly contributed to the injury—since no one can recover for an injury of which his own negligence was in whole or in part the proximate cause. But the person is only required to exercise such care as prudent persons under like circumstances would be expected to use; and a young child, an idiot or feeble-minded person, a sick or very timid person, would not be expected to exert the same care as others of more strength, or courage, or capacity. Three legal rules concerning negligence as applicable to railroad accidents may be laid down as of primary importance, viz.:

- Actionable negligence involves the breach of a legal duty.

- Negligence is actionable only when it causes injury.

- Negligence is not itself a fact, but an inference from facts.

The following are illustrations of acts or omissions that, unless excused or qualified by special circumstances, have been held by courts to be negligence preventing an injured person from recovering damages, viz.: Failure to use his sense of sight by looking up and down the track, before crossing it; sitting, walking, or being upon the track without right; inattention to his dangerous position when on the track, whether there lawfully or not; passing under, over, or between the platforms of cars in motion, or likely to move at once, although they may be improperly blocking the highway; stopping before or behind cars that are stationary on the track; opening gates (to cross a highway, or for other purposes) that are under the railroad company's control, although no gate-keeper is in attendance. And the following are illustrations of similar acts peculiar to the case of a passenger: resting the elbow so that it projects beyond the window-sill; putting the head out of the window; entering or leaving a train while it is in motion; standing on the platform of a moving car; leaving the train by an improper place, other than the platform; going upon a track without reason after leaving the train; riding on the engine, or in the baggage-car, or on the platform. The direction, invitation, or assurance of safety, given by an employé of the railroad company, may so qualify a person's act as to relieve it of the quality of negligence that it would otherwise have. This is particularly true in the case of passengers, for they are particularly in the charge of the company, and have a right to assume that the company's servants know what is safe. The same rule has been held also in the case of persons who were not passengers, but who acted under direction of the corporation's servants in passing over the track at highway crossings. But even to this rule there is an exception, viz., that notwithstanding such direction, invitation, or assurance, the plaintiff will not be excused in following it if the act involves a reckless exposure of himself, or is one that a man of common prudence would not do.

The knowledge and experience of jurors, their acquaintance with the affairs of life, with the way in which men usually act and think, are specially called into request in determining this question of negligence; for the question of contributory negligence being determinable only from the facts, it is for the jury, rather than for the court, to pass upon its existence. Theoretically this is a wholesome check upon the most soulless of all corporations, but practically it is of little importance, for the court has the right to order a nonsuit, without submitting the question to the jury, if, in the opinion of the judge, the inference that the person is not guilty of contributory negligence, or the

inference that the railroad company was negligent, can not legitimately be made from the evidence. So likewise, even after the question has been submitted to the jury and they have determined upon it, their verdict may be set aside by the court, if in its opinion that verdict is contrary to the evidence. In fact, so strong has been the influence that railroad corporations have exerted over the judiciary, that in some States the people have found it necessary to take away from the judiciary (and also from the Legislature) the right to deprive the injured person of the compensation that justly belonged to him.

The same rule of skill and care applies to a railroad corporation as to an individual—except in the carriage of passengers—when the greatest possible care and skill are required. Under the common law, a person injured had the right to recover, from the person inflicting the injury, damages for the injury. But this right was personal to himself, and did not survive him. It died when he died; and if he began an action during his life, on his death the action abated and could not be revived in the name of his personal representative. In every State, however, it is now provided by statute that the right of action shall survive the death; that the suit may be begun or prosecuted by the personal representative; and that the amount recovered shall be a part of the dead man's estate. There must, however, be some period of time intervening between the infliction of the injury and the death. If the death followed the wrongful act instantly, there was no period during the lifetime when a cause of action capable of survival accrued. The length of time during which the person lived after the injury is not material. It is sufficient if life continued for any period, however brief, after the receiving of the injury, even without intelligence or consciousness. Such was the law for several years, and the people began to harbor the opinion that railroad companies found it cheaper to kill people outright than to maim them and let them live; and it was even whispered that certain wrecked trains were purposely set on fire, that the injured passengers might not escape to become litigants! Finally, however, public opinion procured the enactment of laws providing for the recovery of damages in cases where death instantaneously followed the injury.

Under the common law, the death of a human being could not be complained of, in a civil court, as an injury, no matter whether it resulted from accident or from the careless or felonious assault of the person causing it; and under the common law no action could be maintained for the loss of the comfort, assistance, support, or service of a husband, father, wife, child, or other relative, against the person or corporation by whose fault the death was caused. Such was the common law in this country when railroad trains first began to prove death-traps to passengers. To modern

minds it was barbarous; and public opinion, following the dictates of natural justice, caused it to be modified. Statutes have therefore been enacted in every State in the Union, requiring the person or corporation, by whom an injury causing the death of another is willfully or through negligence inflicted, to compensate those who had an immediate pecuniary interest in the life of the deceased person. Such statutes frequently prescribe limits as to the amount of this compensation, above or below which damages can not be assessed; but in many States there is no limit, and the amount is left to the determination of the jury, subject, however, to the interference of the court, or judge, as mentioned above. The remedy in the greater number of the States is by an action for damages, prosecuted by the executor or administrator; and generally the sum awarded does not become such a part of the dead person's estate that it can be claimed by creditors, but is to be distributed among the husband or widow, and next of kin of the decedent. In Maine, New Hampshire, and Massachusetts, however, the remedy is by prosecution, on behalf of the State, in form criminal, for the recovery of a fine, to be distributed among the husband, or widow, and next of kin. In Maryland, the proceeding, though on behalf of the State, is in form civil. The statutes that provide for a civil remedy, though varying in matters of detail, have all the same general framework, and most of them are subjected to amendment. The statute of New York State (passed Dec. 13, 1847, and amended April 7, 1849, and March 16, 1870) may be taken as an example of the laws giving a civil remedy. So likewise the statute of Massachusetts (enacted originally March 23, 1840, and then providing only a remedy for the death of a passenger, but amended in 1874 [chapter 372, § 163] to include, among other provisions, a remedy for the deaths of others than passengers) is typical of the statutes providing for a criminal proceeding. These statutes have no effect outside of the States that enacted them, but are limited to injuries inflicted within the State; and they can only be enforced by the courts of the State upon whose statute-book they stand as laws. It has, however, been held that, where the statutes are similar, a recovery can be had for an injury in one State within the jurisdiction of the other. Although the corporation that inflicted the injury was created by the State in which there is a statute of this kind, it is not liable in the courts of that State for an injury committed abroad. Nor does the fact that the injured person died within the jurisdiction of the State bring within the statute injuries inflicted beyond the State. Generally, the statute does not apply to injuries committed on the high-seas; but it has been held to extend to such injuries when committed on waters that, although they were arms of the sea, were within the jurisdiction of the State; and it has also been extended to

injuries committed beyond the jurisdiction of the State, on a vessel belonging to the State, and suffered by one of its citizens. In this connection it is important to notice the constitutional provisions of four States: The Constitution of Arkansas provides that all railroads shall be responsible for all damages to persons or property, under such regulations as may be prescribed by the Legislature (Const., 17, 12), and that the Legislature shall, by suitable laws, require all railroads to adopt and provide the necessary means and appliances to secure the safety of passengers (Const., 19, 18). The Constitution of Colorado provides that it shall be unlawful for any person or corporation to require of its employés any contract or agreement whereby the person or corporation is released from liability on account of personal injuries received by such employés (Const., 15, 15). The Constitution of Texas provides that every person or corporation that may commit a homicide, through willful act, or omission, or gross neglect, shall be responsible in exemplary damages to the surviving husband, widow, or heirs, notwithstanding any criminal proceedings that may or may not be had (Const., 16, 26). The Constitution of Arkansas also provides, in addition to the provisions previously mentioned, that no act of the Legislature shall limit the amount to be recovered for injuries resulting in death; and that in case of death resulting from injuries, the right of action shall survive for the benefits of such persons as the Legislature may prescribe (Const., 5, 32). The Constitution of Pennsylvania has a similar provision, with the addition that no act shall prescribe any limitation of time within which such suits may be brought against corporations different from those fixed by general laws for actions against natural persons.

Where there is a statute to keep alive the civil action to which, under the common law, the deceased was entitled, the question arises whether another statute, providing a remedy by fine, or criminally by the State, applies also. It has been held in Maine that the proceeding by indictment holds only where the death was instantaneous, the view being taken that one remedy ends where the other begins, in order to prevent the application of two independent and conflicting remedies to the same injury; but in Massachusetts the remedy by indictment is held to apply to an injury resulting in death, whether the death is immediate or not, although when it is not immediate, a civil action might be brought by the personal representative; and in New York the statute is held to apply whether death is instantaneous or consequential. Where death is not immediate, there is permitted in some States an election of remedies—one being an action at common law by the injured person for the pain and suffering and disability arising from the injury, and the other being an action for the benefit of relatives under the statute; but they treat judgment in one action as a bar to the other. Other States permit

two concurrent remedies—one for the injured person's cause of action, with damages limited to the time of his death; and the other for the pecuniary injury resulting to the survivors, who are entitled to the amount recovered under the statute. But it is not to be presumed that the statute contemplated a double payment for the same injury, and therefore an action can not be maintained for an injury for which the deceased person received full satisfaction in his lifetime.

The same rules of law and evidence apply to the trial of an indictment or to a civil action for the benefit of relatives, as to a civil action brought by the injured person; thus the same rules determine the relative rights and duties of the company and the passenger, and the negligence or contributory negligence of each must be determined in the same manner. Any amount that may be received by the relatives, for whose benefit the action is brought, upon policies of insurance on the life of the deceased, is not to be admitted in reduction of damages. The circumstances of the deceased, his occupation, health, age, habits, skill, and capacity for business, the amount of his property and even his annual earnings and the probable duration of his life, have been admitted to show the pecuniary injury that the survivors have suffered. Proof has been permitted of a father's occupation with reference to its probable effect in determining the business and earnings of a child for whose benefit the action was brought. Juries have no small difficulties to contend with in assessing damages when they have before them evidence as to average profits or the amount of the life-income of the deceased, and have the assistance of accountants and annuity-tables; but these difficulties are trifling compared with those in which they must become entangled when attempting a pecuniary estimate of the loss of the care, protection, and assistance of a father. In whatever light we look at the subject, either of law or morals, we become perplexed in attempting to pursue it. It is permissible to give evidence of the character of the deceased, and in many cases this would be of a most painful nature. A railroad company has no right to inflict wanton injury on persons who are unlawfully on its property; and where human life and limb are concerned, that injury may well be treated as wanton, subjecting the company to damages, when, although able to do so, the company has neglected to stop what it has had good reason to believe would, if not stopped, ultimately result in an injury. But the company is not bound to anticipate the intrusion of trespassers.

When persons are employed by a railroad corporation to perform the same or separate duties all tending to the accomplishment of one and the same general purpose and end—i. e., the maintenance and management of the railroad—one person so employed can not maintain an action against the company for an injury received by him through the careless, neg-

ligent, or unskillful act of another employé engaged in the same service. The justice of this rule is very doubtful. The rule itself has been qualified in some States and rejected in others—notably in Iowa, Georgia, and Wisconsin. In Pennsylvania only has it been extended by statute to other persons, not servants of the company, who are employed or engaged on or about its road or works. But the railroad company is liable to its servants for its own negligence or malfeasance.

The following is a list of those States which by statutes have provided for the payment of damages, by railroad companies, for deaths caused by them. Where there is no limit, the amount is to be fixed by the jury, as previously spoken of:

Alabama—no limit.
 Arkansas—no limit.
 California—no limit.
 Colorado—not more than \$5,000 nor less than \$3,000.
 Connecticut—not more than \$5,000 nor less than \$500.
 Delaware—no limit.
 Georgia—no limit.
 Illinois—not more than \$5,000.
 Indiana—not more than \$5,000.
 Iowa—no limit.
 Kansas—not more than \$10,000.
 Kentucky—no limit.
 Louisiana—no limit.
 Maine—not more than \$5,000.
 Maryland—no limit.
 Massachusetts—not more than \$5,000 nor less than \$500.
 Michigan—no limit.
 Minnesota—not more than \$5,000.
 Mississippi—no limit.
 Missouri—not more than \$5,000.
 Nebraska—no limit.
 Nevada—no limit.
 New Hampshire—not more than \$5,000 nor less than \$500.
 New Jersey—no limit.
 New York—not more than \$5,000.
 North Carolina—no limit.
 Ohio—not more than \$10,000.
 Oregon—not more than \$5,000.
 Pennsylvania—no limit.
 Rhode Island—no limit.
 South Carolina—no limit.
 Tennessee—no limit.
 Texas—no limit.
 Vermont—no limit.
 Virginia—not more than \$10,000.
 West Virginia—not more than \$5,000.
 Wisconsin—not more than \$5,000.

RANKE, LEOPOLD VON, a German historian, born in Wiehe, Thuringia, Dec. 21, 1795; died in Berlin, May 23, 1886. He studied at Leipsic and early devoted himself to historical work. His first work was a "History of the Roman and Teutonic Nations from 1494 to 1535," published in 1824. He was appointed to the chair of History at the University of Berlin, and in 1827 was commissioned by the Prussian Government to make researches in the archives of Vienna, Venice, Rome, and Florence. The results of his labors were a series of works, published between 1829 and 1834, among which are "Die Serbische Revolution," and "Über die Verschwörung gegen

Venedig." His next work was "The Popes of Rome, during the Sixteenth and Seventeenth Centuries." It was translated into English by Sarah Austin, in 1840. He was appointed Prussian historiographer in 1841, and published, among other works, "Nine Books of Prussian History," 1847-'48; followed by a larger work on the same subject. Turning his attention to other countries, he published "French History, particularly in the Sixteenth and Seventeenth Centuries," and "English



LEOPOLD VON RANKE.

History, particularly in the Seventeenth Century." The latter is a favorable specimen of his method, clear, accurate, and based on a careful study of original documents. Between 1871 and 1877 he produced the "Life of Wallenstein," and the "Origin of the Seven Years' War," and a number of such works, relating to episodes or aspects of German history. A few years ago he began a great work on "Universal History," six volumes of which were published before his death.

RED CROSS SOCIETY, an organization for the purpose of securing neutrality to the ground occupied by hospitals, etc., during war, and to provide relief from disasters by flood, pestilence, or other calamity during peace. The movement had its origin in Europe. The battle of Solferino was fought in 1859, and Henry Dunant, a Swiss gentleman, visited the battlefield. What he saw of suffering on the field and in the hospitals, where he continued for several days assisting as a volunteer in the care of the wounded, made a lasting impression. He saw that, with all the appliances and outfit of the French army, aided by the inhabitants of places where the wounded were taken, the wounded were often left for days without attention or surgical relief. In 1862 he published a description of what he had seen, and set forth reasons for establishing in every country permanent societies for the relief of the wounded. His article was quickly translated

into several European languages, and created a deep impression. A society in Geneva, Switzerland, called the Genevee Society of Public Utility, appointed a committee, of which Gen. Dufour, the General-in-Chief of the Swiss Confederation, accepted the presidency, for the purpose of advancing the proposals of Dunant. This led to the international conference held at Geneva, in October, 1863, which was attended by delegates from sixteen governments. This conference lasted four days, and resulted in the calling of an international congress, known as the International Convention of Geneva of 1864. The deliberations lasted nearly a fortnight, and resulted in a code of nine articles, signed Aug. 22, 1864, by such of the representatives as had been sent with sufficient power to sign a treaty. This was considered a most remarkable instance of a general treaty brought about by the exertions of an individual in private life. The special aim of the convention of 1864 was to obtain the neutralization of the wounded in war-time, and also of the persons and materials necessary for their care. The conference of 1863 had aimed at a system of relief-societies for all countries. The treaty of 1864 secured the neutralization of hospitals, materials, nurses, and surgeons; and, that these might be recognized, a common sign was fixed upon by the seventh article of the treaty, which provides for a flag for hospitals and convoys and an arm-badge for persons. The flag designed was a red cross upon a white ground, adopted as a compliment to Switzerland, this design, with the colors reversed, being the national flag of that country. Thus, from these two notable conventions in Geneva, in 1863 and 1864, arose the establishment of national relief committees and societies, and a treaty that now embraces every civilized nation of the earth.

During the civil war in the United States (1861-'65) there was no official obligation to protect nurses or agents of the philanthropic societies. If they fell into the hands of the enemy, they had to take their chances with other prisoners. It was often a subject of complaint that hospitals, containing the sick and wounded, drew the deadly fire of the foe. The societies of the Red Cross were probably suggested by our Sanitary and Christian Commissions; but, unfortunately, the movement came too late to be of much service here. The lack of what the Red Cross supplies was keenly felt by Clara Barton, a nurse in the national army during the war. Miss Barton was in Europe during the French and German War, and, under the shelter of the Red Cross, took an active part, first in Germany and then in France, in mitigating the calamities of that conflict. As she could not have succeeded in her labors without the protection that her badge afforded, she felt it to be her duty, on returning to America, to enlist the good offices of some statesmen for the extension of those privileges to her own country. But the signs

were not at first favorable, and she waited. She was in Washington for a considerable time during the administration of President Hayes, but still found obstacles that were not to be surmounted, and continued to wait till the accession of President Garfield, when all difficulties were removed and the President and his Cabinet came cordially into her views, and gave her assurances that the Geneva treaty should be brought to the attention of Congress. The death of the President devolved the duty on his successor, and President Arthur finally signed the treaty March 1, 1882. In 1877, through the influence of Miss Barton, a society was established in Washington, styling itself the "American National Committee or Society of the Red Cross for the Relief of Sufferings by War, Pestilence, Famine, Fire, Flood, and other Calamities." Although the aim of the society was so great as to be regarded as national in extent, yet the organization did not begin its work until assured by President Garfield's Administration that the treaty of Geneva would be recommended to Congress. Then Miss Barton secured the incorporation of the "American Association of the Red Cross," and began the establishment of branch societies at Danville, Rochester, and Syracuse, in the State of New York.

One of the last things that President Garfield did was to designate Miss Barton as the president of the parent society. Branches have been formed in several of the States. The societies of the Red Cross are on the same basis, but with the greater advantage of having a permanent organization, and being recognized through the Geneva treaty, by all the great civilized nations. They are not equipped for war alone. Having a perpetual existence, and being located in all parts of the country, and under the orders of general officers, they propose to be always ready with supplies and trained nurses for every emergency. Hence, in case of any great calamity—a pestilence, a devastating fire, an overwhelming flood—the Society of the Red Cross can always be the advance guard of relief, and be on hand to prompt those further measures which may be beyond their immediate means. Much good and effective work was done by the societies during the overflow of the Ohio and Mississippi Rivers in February and March, 1884. Relief was also extended to the sufferers by the earthquake in the vicinity of Charleston, S. C., in 1886. An unfortunate association of the name of the Red Cross with the promoters of widely divergent objects led Miss Barton, in June, 1886, to make public the following statement:

"After all which has been written about and done by the American Association of the National and International Red Cross during the last seven years, further explanation would scarcely seem necessary under any circumstances. But, observing with pain that a body of men recently announcing themselves in Chicago as the 'Brothers of the Red Cross'

are giving utterance to language both shocking and dangerous to the community, and to which utterances sufficient attention is paid to be reported by the newspapers at large, a word also through the press may be due to the people as well as to the Red Cross itself. It will be remembered that one of the first public moves following the recent riots in Chicago was a telegraphic dispatch from the Red Cross expressing sympathy, and offering aid, if needed, to the wounded policemen of that city, which dispatch was properly and gratefully responded to. The province, however unintentional of an assumed guise, is to mislead; and, in view of this fact, we beg the people to bear in mind that the real and legitimate Red Cross of this country knows nothing of this body of men; that it does not wound, but seeks to help whom others have wounded; that to-day it marks every military hospital in the civilized world; that by national law it is worn by every officer and every attendant serving the sick and wounded of any field; that, being of the Government, it is true to the Government; that, being of the people, it is true to the people; that, being of humanity, it is true to humanity; that, by the articles of the treaty under which it exists and its own principles, it can never be aggressive, it can never assimilate with anarchy, hostilities, or violence, but that, when or wherever the threatened work of such as these leaves off, the work of the real Red Cross must forever begin."

The twentieth anniversary of the Red Cross was celebrated in the parent city, Geneva, in September, 1884. The occasion was especially interesting on account of certain features that marked the progress in facilities for carrying on the work. This was more particularly shown by an exhibit at night for the purpose of illustrating the advantage of using electric lights to clear a battle-field of the wounded and slain. About half of the great mall of Geneva, known as the Plainpalais, was partitioned off by portable fencing, and over its surface, upon its grass-plats and walks, lay, singly and in clusters, over a hundred gymnasts, or turners, who had volunteered to represent the wounded, dying, and slain on a battle-field. At nine o'clock a powerful electric light was turned on from one of the remote corners of the mall. Forthwith a number of firemen (four companies of whom had been trained to do ambulance-work and porter service for this occasion) issued from one quarter, and, with lantern in hand, a flask of water, and a warmed can containing preserved refreshments, were seen to go forward searching for the wounded and giving them a preliminary measure of relief. They were soon followed by the so-called searching and permanent relief corps, which, from a given starting-point, divided into sections and marched diagonally across the battle-field, covering its entire extent. Rays of electric light were so operated that these searching sections could readily see every part of the field

they traversed. The ambulances and porters then entered the field, and, following the searching sections, carefully placed the wounded on stretchers or in the ambulances, while the dead were also lifted into ambulances or carried away. Within a surprisingly short time the field was cleared of its fifty-two wounded and sixty-four slain. The effect at times was ghastly—to which the peculiarity of the electric light largely contributed—heightened as was the scene by the occasional moan of wounded, cries of help, the slow, measured walk of the ambulance-horses, and the suppressed manner in which directions were given by the large corps of volunteer physicians, who personated the military surgeons on the battle-field, and one or more of whom accompanied each ambulance section.

Within a few years Queen Victoria has instituted a new order of the Royal Red Cross, consisting of an enameled crimson cross, edged with gold, bearing the effigy of the Queen in the center, and the words "Faith, Hope, Charity" on the arms. The cross is to be attached to a dark-blue ribbon edged with red, of one inch in width, tied in a bow and worn on the left shoulder. The official circular, noticing the establishment of the order, says the decoration shall be conferred upon any ladies, whether subjects or foreign persons, who may be recommended by the Secretary of State for War, for special exertions in providing for the nursing, or for attending to sick and wounded soldiers and sailors, or upon any nursing sisters, whether subjects or foreign persons, who may be recommended by the Secretary of State for War, or, as the case may be, by the First Lord of the Admiralty through the said Secretary of State, for special devotion and competency, which they may have displayed in their nursing duties with the army in the field, or in the naval and military hospitals.

REFORMED CHURCH IN AMERICA. The statistical reports of this Church, made to the General Synod in June, give the following footings:

Number of particular synods.....	4
Number of classes	84
Number of churches	536
Number of ministers	554
Number of families	46,409
Number of communicants	58,087
Number received on confession.....	4,719
Number of baptisms of infants.....	4,708
Number of baptisms of adults.....	1,094
Number of baptized non-communicants.....	29,779
Number of catechumens	29,867
Number of Sunday-schools	769
Total enrollment of Sunday-schools.....	96,535

AMOUNT OF CONTRIBUTIONS.

For religious and benevolent purposes.....	\$281,975
For congregational purposes.....	859,429

The statistics of the missions in China and Japan, which have heretofore been included in the general statistics, are this year omitted, by authority of the General Synod.

The Board of Education reported to the General Synod that it had received \$20,581, and was in debt to the amount of \$3,862,

The total amount of the Permanent fund was \$47,615.

The receipts of the Widows' fund, as returned to the General Synod, has been \$9,482. The principal fund had been increased by \$1,617, and was now \$67,873.

The income of the Disabled Ministers' fund had been \$8,729. The capital of the fund now amounted to \$58,817.

The assets of the Board of Publication were returned as \$16,261, with no liabilities. Thirteen publications had been issued during the year.

The receipts of the Board of Domestic Missions had been \$32,210. The Church-Building fund had increased by \$12,212, and was indebted to the amount of \$7,884. Ninety-two missionaries had been employed in the charge of 109 stations, with which were connected 4,979 families and 6,910 members; and 667 persons had been received on confession.

The receipts of the Board of Foreign Missions had been \$81,386, and its expenditures had been \$82,753. The cost of administration of the missions, including premium and interest, was about 10 per cent. of the whole amount received and expended; or, excluding those items, about $7\frac{1}{10}$ per cent. The missions are the Arcot mission in India, the Amoy mission in China, and the Japan mission. Together they returned 12 stations, 102 out-stations and preaching-places, 21 ordained and 1 unordained missionaries, 27 assistant missionaries, 8 native ordained ministers, 188 other helpers, 31 churches (in India and China), 2,394 communicants (in India and China), 11 seminaries, with 444 male and 193 female pupils, 4 theological schools with 49 students, and 100 day-schools (in India and China), with 2,374 pupils. The churches, pastors, helpers, and students in Japan are not included in these returns, they belonging to the "Union Church of Christ in Japan," which is composed of a combination of five Presbyterian and Reformed missions. This Church returned, for 1885, 1,229 households, 3,228 adults, and 580 children as members, an average Sunday-school attendance of 1,973, 26 licentiates, 38 theological students, 29 students under the care of the classes, and contributions of \$12,248. The biennial Synod of the Church was held in November, 1885, when three classes, comprising 39 churches, were represented. It appeared, from the reports which were presented, that 1,413 adults had been baptized during the past two years; that ten churches had been added, showing an increase of 34 per cent. in the number of churches; and that the number of communicants had increased by 1,431, or 80 per cent. Six new churches were added to the roll of the Synod, by the accession of which the number of adult members in the entire Church was raised to more than 4,000. A new division of classes was made by which, out of the already existing three classes with the six added churches, five classes were formed.

The General Synod of the Reformed Church in America met in New Brunswick, N. J., June 2. The Rev. John B. Drury, D. D., was chosen moderator. A committee, which had been appointed in the previous year concerning a critical revision of the Constitution of the Church, made a report, explaining the principles by which its action had been governed. It had also been the purpose of the committee, as expressed in resolutions additional to those under which it had been appointed, instead of foot-notes to append, in the obligatory doctrinal forms, simple marginal references to the page, leaving everything in the way of interpretation and explanation to the standards themselves, "and to an honest ministry pledged thereto, where it has been these two hundred years," and, "so far as present foot-notes are merely of the nature of better translation, to have them transferred to the text." In fulfillment of the duty assigned to them, the committee presented what they believed to be an accurate historical arrangement of the Constitution, premising that some things had carelessly been printed as parts of the present Constitution which had no place therein": for instance, "various forms of certificates, rules for reception of ministers from other ecclesiastical bodies, rules of order for the government of the General Synod, etc. The Constitution proper includes the recognized doctrinal standards (in addition to the ancient creeds), the Liturgy, and the declared articles of church government; and these, with a suitable title-page, and an historical introduction for general information, should be arranged historically." The Liturgy included the two classes of obligatory forms and of optional forms. The forms of the former class had never been altered; they had been treated as historical and obligatory, and no attempt to change the wording of the standards and Liturgy, as they came from the Synod of Dort, had prospered. The work of successive committees of revision, in respect to these forms, had been in the direction of improved translation, of bracketing portions for public reading without destroying the text, and of the addition of new offices. The last Synod had directed that whatever a proper development might seem to demand in the way of forms additional to the old or other matter should be placed separately by itself, as new matter, marking, and appropriate to, its age. A number of new offices had been approved by the Synod and the classes, and would, if ratified by the Synod, take their place among the optional forms. The marginal references, which the committee proposed to insert in place of foot-notes, were designed to enable any one who had doubt of the meaning of particular clauses in the offices readily to turn to the standards of the Church for a fuller and more precise explanation. References were proposed in connection with the first question in the form for infant baptism, and with the second and fourth questions in the form for

adult baptism. The recommendations in regard to transfer of foot-notes to the text were, that the word "complete," in the foot-note connected with the second question of the form for infant baptism, be substituted in the text for the word "perfect," and that in the form for the administration of the Lord's Supper the word "judgment" be substituted for the word "damnation." The Synod directed that the version of the Heidelberg Catechism reported in 1878 be adopted as the authorized one, and that it be substituted for the old version in all future editions; that the new forms recommended by the committee as optional forms, which had already been for several years printed in connection with the standards, be adopted as optional constitutional forms; and the version of the questions in the forms of baptism given in the report of the committee be adopted as the authorized one, and that it be substituted for the old version in all future editions in English.

The following action was taken, in the form of the adoption of the report of a committee on the subject, concerning the Revised Version of the Holy Scriptures:

While we recognize the merits of the Revised Version, as giving in many places a more exact rendering of the original Scriptures than the one now in use, and therefore well worthy to be studied by our ministers and people, we are yet of the opinion that the time has not yet come for such a synodical recommendation of it, as a whole, as the resolution appointing the committee would seem to contemplate. As we are informed, there has been up to this time no action in regard to the Revised Version by the Anglican Convocation of Canterbury—the body with which the revision movement originated. We are also told by one of the revisers that it is possible that the Convocation may refer the work back to the companies of revisers for specific modification, or for a final standard edition. Meanwhile, as we are not aware of any act of General Synod requiring the exclusive use of our present version in the public services of the Church, your committee are of opinion that our pastors are at perfect liberty to make such use of the Revised Version, in the pulpit or elsewhere, as they may deem proper.

A commissioner was appointed to visit the missions of the various Presbyterian churches in India, tender them the salutations of the Synod, and confer with them in regard to a union of the Presbyterian churches there into one confederated Presbyterian Church in India. A committee was appointed to confer with representatives of the Reformed Church in the United States in regard to union of the two.

RHODE ISLAND. State Government.—The following were the State officers during the year: Governor, George P. Wetmore, Republican; Lieutenant-Governor, Lucius B. Darling; Secretary of State, Joshua M. Addeman; Treasurer, Samuel Clark; Auditor and Insurance Commissioner, Samuel H. Cross; Railroad Commissioner, Walter R. Stiners; Attorney-General, Samuel P. Colt, succeeded by Edwin Metcalf; Commissioner of Public Schools, T. B. Stockwell; Adjutant-General, Elisha Dyer, Jr. Supreme Court: Chief-Judge, Thomas

Durfee; Associate Justices, Pardon E. Tillinghast, Charles Matteson, John H. Stiners, and George A. Wilbur.

Legislative Sessions.—An adjourned session of the Legislature was held in Providence, beginning on January 26 and ending on April 30. The most important action of this session was the approval of two proposed amendments to the Constitution and the providing for their submission to the people at the April election. The first amendment reads as follows:

ARTICLE V. The manufacture and sale of intoxicating liquors to be used as a beverage shall be prohibited. The General Assembly shall provide by law for carrying this article into effect.

The following is the language of the second amendment:

ART. VI. All soldiers and sailors of foreign birth, citizens of the United States, who served in the army or navy of the United States from this State in the late civil war, and who were honorably discharged from such service, shall have the right to vote on all questions in all legally organized town, district, and ward meetings, upon the same conditions and under and subject to the same restrictions as native-born citizens.

The new Legislature met at Newport, on May 25, and adjourned on the 9th of June to meet in Providence on Jan. 18, 1887. An act was passed to carry into effect the prohibitory amendment; and Nelson W. Aldrich, Republican, was re-elected United States Senator.

Finances.—The bonds of the State outstanding, Dec. 31, 1886, were as follow:

Bonds of July 1, 1863, payable 1898, coupon....	\$189,000 00
Bonds of July 1, 1863, payable 1898, registered....	425,000 00
Bonds of Aug. 1, 1884, payable 1894, coupon....	382,000 00
Bonds of Aug. 1, 1884, payable 1894, registered....	400,000 00

Total.....	\$1,846,000 00
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Balance in treasury, Jan. 1, 1886.....	\$843,524 99
Receipts for year ending Dec. 31, 1886.....	726,591 06

Total.....	\$1,070,116 05
Payments for year ending Dec. 31, 1886.....	819,705 06

Balance in treasury Jan. 1, 1887.....	\$250,410 99
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Savings-Banks.—The following summary of the condition of the institutions for savings in the State on Nov. 16, 1886, shows a substantial increase in the different items over the corresponding ones for the previous year:

Increase of deposits.....	\$1,468,430 09
Increase of surplus profits.....	\$192,666 02
Deposits and surplus amount to.....	\$56,087,569 22
The whole number of depositors.....	119,159
Increase of depositors.....	2,778
Average to each depositor.....	\$447 18

The amount of deposits (\$4,284,214.15) and the number of depositors (1,434) in the Rhode Island Home Trust Company are not included in the foregoing summary.

Education.—The following abstract of the school returns for the year has been made from the report of the Commissioner of Public Schools:

Number of children from five to fifteen years, inclusive.....	61,657
Increase from last year.....	1,540
Number that attended more than twelve weeks.....	48,700
Increase.....	2,180
Number who did not attend any school.....	11,445
Increase.....	228

RHODE ISLAND.

Average length of schools.....	9 mo. 10 d.
Increase.....	4 days.
Number of teachers regularly employed.....	1,048
Increase.....	36
Amount paid teachers.....	\$452,146 65
Increase.....	\$23,459 40
Current expenditures for day-schools per capita of school population.....	\$9.41
Increase.....	30

In the evening-schools, while there is an apparent falling off in the attendance, there has been a decided gain in its character and value. The percentage of the attendance and the enrollment have never been so high as during this year.

The State Normal School continues to receive an increasing patronage. The number of students in attendance is 138, and the whole number enrolled since the school was organized in 1871 is 1,084, of whom a large portion have taught in the public schools.

The State School for the Deaf has about 30 pupils.

The Rhode Island State Home and School for Dependent and Neglected Children was opened in April, 1885, and during that year 26 children were admitted. The whole number received to Jan. 1, 1887, has been males 43, females 17, making a total of 60, and the number of children in the home on the same day was 50. The annual appropriation for 1886 was \$10,000, and the current expenses for the same period \$9,014.40.

The Rhode Island School of Design increases in activity and usefulness.

Soldiers and Sailors.—By an amendment to the original act the sum of \$10,000 is now annually appropriated for the relief of disabled and needy soldiers and sailors. By an act passed in 1886, the sum of \$5,000 is annually appropriated for a temporary home for Rhode Island soldiers or sailors who may be destitute and are waiting for or unable to obtain admission to any of the national homes for disabled volunteer soldiers. During the year 54 applications were made, 45 admitted, 5 to hear from, 2 disapproved, and 2 applicants decided not to avail themselves of the privilege.

State Charities and Corrections.—For 1886, the sum of \$140,000 was appropriated for the general expenses of the board in maintaining the several institutions under their charge, in addition to their receipts. These receipts, derived from labor and board of inmates, sales of produce, etc., amounted during 1886 to \$33,001.78. This money was paid by the board into the State Treasury and added to the appropriation, thus increasing their resources to \$173,001.78. From this sum was drawn a total of \$163,156.78, leaving a balance of \$9,845 undrawn.

An appropriation was made this year for preparing plans and estimate of cost of a new State Almshouse. The institution will be designed for 300 inmates, about 100 more than the maximum up to the present time. Accommodations will be made for the old and the young of both sexes, for women in confine-

ment, for the sick and for the dying, for those stricken with noisome diseases and for the convalescent.

The number of inmates in the several institutions, Dec. 31, 1886, was as follows: In the State Prison, 105; in the Providence County Jail, 210; in the Sockanoset School for Boys, 189; in the Oaklawn School for Girls, 27; in the Workhouse and House of Correction, 134; in the State Almshouse, 190; in the Asylum for the Incurable Insane, 425. Total, 1,280. This is a decrease of thirty, in all of the institutions together, since the same date a year ago.

The increase of the insane at the State Asylum has been 111 in the past two years, 56 in 1885, and 55 in 1886. It is almost two years since the law relieving the towns from the support of their pauper insane went into effect, and it is probable that this increase is in a measure due to the change.

The State beneficiaries, provided for at institutions outside the State, number 18. The expense of education and maintenance of each of these is \$300 per annum, except at the American Asylum, where the annual charge is \$175.

Prohibition.—The prohibitory amendment went into effect on July 1. With respect to its working, the Governor, in his message to the Legislature in 1887, says: "The prohibitory amendment adopted, it became the duty of the people, irrespective of previous personal opinions, loyally to accept and observe it, and for its friends and advocates not only to give it an increased moral support, but also to aid actively in its enforcement. All things considered, I think it may fairly be said that as good results have been obtained in its enforcement as could have been reasonably anticipated, and as an evidence of this I may cite the official records of the police departments of the cities of Providence and Newport, whose statements, which I assume to be correct, indicate a large reduction of drunkenness and of that class of disorder and misery which intoxicants provoke and stimulate. By information received, and from various unofficial reports which appear to me to be reliable, I can not doubt that violation and defiance of the law are still very general, and therefore that some further legislation will be necessary."

The Chief of the State Police recommends sundry amendments to the law, intended to secure greater efficiency in the enforcement of the amendment. He says: "The friends of the prohibitory amendment seemed to feel that with its adoption their duties and responsibilities ceased. Some are of record as opposing any new legislation to carry out its provisions, a position shown soon after to be most unwise by a decision of the Supreme Court that in effect declared that without new legislation in this direction in May last the amendment would have been inoperative. Others objected to my selection as Chief of State Police, but without communicating to the General Assembly who,

in their opinion, was better fitted for the position. With the exception of the Woman's Christian Temperance Union, to whose persevering efforts the adoption of the amendment is largely due, and to whom I am indebted for a cordial and intelligent support, and the Law and Order Leagues in Woonsocket, East Greenwich, and South Kingstown, I have received no words of encouragement even, much less support, from the many kindred organizations throughout the State. The statistics from the cities and larger towns, which is a fair test of the operation of the Act for the Suppression of Intemperance, show a marked decrease in drunkenness, reveling, common drunkards, and other offenses, directly chargeable to the intemperate use of intoxicating liquors. The statistics from the city of Providence show an increase of drunkenness during the last six months of the license law of 1883 per cent., while during the first six months of prohibition as compared with the corresponding period under license, drunkenness decreased more than 42 per cent. The commitments to the State Workhouse, whose inmates are largely victims of the intemperate use of intoxicating liquors, for the first six months under prohibition, as compared with the corresponding period under license, show a falling off of more than one half, and resulting in a large saving to the State in the item of board alone."

The "Providence Journal," reviewing the first six months of prohibition, says: "The most obvious result of the law is the abolition of open selling to any and all comers. Throughout the State the public saloon is reported unknown. But, precisely as was anticipated, in place of the saloons a multitude of methods for selling secretly have been introduced. These include 'clubs' of varying degrees of disreputability, 'kitchen bar-rooms' in filthy tenement-houses, and a swarm of 'pocket-peddlers,' who have infested the south part of the State. As indicated by the comparative police statistics of 1886 and 1885, the quantity of liquor distributed from these sources is considerably less than was sold under the license system; but, for obvious reasons, it is, on the average, of much greater alcoholic strength." An attempt to set aside the amendment as not legally adopted failed, the Supreme Court dismissing the bill for want of jurisdiction.

Political.—The Prohibition State Convention was held in Providence on the 3d of March. The following were the nominees: For Governor, George H. Slade; Lieutenant-Governor, Jason P. Hazard; Attorney-General, Edwin Metcalf; General Treasurer, William Bodfish; Secretary of State, H. D. Scott.

The Democrats met in State Convention in the same city on March 17, and nominated for Governor, Amasa Sprague; Lieutenant-Governor, Thomas Robinson; Secretary of State, Franklin P. Owen; Attorney-General, Edwin Metcalf; Treasurer, John G. Perry. Mr. Metcalf had always acted with the Republicans.

The Republican State Convention met in Providence on March 25, and renominated Governor Peabody, Lieutenant-Governor Darlin, Treasurer Clark, and Secretary of State Addeman, by acclamation. Much spirit was shown in the contest for Attorney-General, which resulted in the renomination of Mr. Colt on the eighth ballot by a bare majority. On April 7 the Republican candidates, except for Attorney-General, were elected. The vote for Governor was, Republican, 14,340; Democratic, 9,944; Prohibition, 2,585. The vote for Attorney-General was: Metcalf, 14,089; Colt, 12,445. The prohibitory amendment was ratified by a vote of 15,113, against 9,230, and the suffrage amendment by a vote of 18,903, against 1,477. The Legislature chosen at this election consists of 30 Republicans and 7 Democrats in the Senate, and 64 Republicans, 7 Democrats, and 1 Prohibitionist in the House. On the 2d of November a Republican was elected to Congress in the First District; in the Second, the Democratic candidate had a plurality, but, a majority being required to elect, there was no choice.

ROMAN CATHOLIC CHURCH. One of the most remarkable effects of the decrees of the Plenary Council of Baltimore was the practical interest in the colored people and Indians in the United States excited among Catholics. Collections for the missions among them have been generally ordered, and the records for the year 1886-'87 exhibit many new churches and schools built for them. The proclamation of the Holy Father of the jubilee for the year 1886 obliged the keeping open every day in the year of several churches in each diocese, and the result in increased devotion was noticeable. The earliest death of a member of the hierarchy in the United States, in 1886, was that of the Rt. Rev. Bishop Baltes, of Alton, Ill. (See page 664.) On January 15 the pallium for the Rt. Rev. Archbishop Corrigan, of New York, was postulated in the consistory held by the Holy Father at Rome. The archbishop, by special favor, had been permitted to perform the duties of his episcopal office before he received the pallium, in the Cathedral of St. Patrick in the city of New York, on March 3. On June 7 his Holiness the Pope created James Gibbons Archbishop of Baltimore; Alexander Taschereau, Archbishop of Quebec; Victor Félix Bernadou, Archbishop of Sens; Benedict Mary Langnieux, Archbishop of Reims; Charles Philippe Place, Cardinal Priests of the Holy Roman Church; and Augustus Theodoli and Camillus Mazzella, S. J., cardinal deacons. Cardinal Mazzella was formerly a professor in the Jesuit Seminary at Woodstock, Md. He is considered to be one of the soundest theologians in the Catholic Church. His writings have made him famous among clergymen in all countries where Christianity is preached. Cardinal Gibbons, the other English-speaking American cardinal, is the author of the most

widely circulated Catholic book ever printed in America, "The Faith of our Fathers." On June 30, Mgr. Straniero, accompanied by a member of the Pope's noble guard, Count Stanislaus Muccioli, who had brought the red beretta to Cardinal Gibbons, was present at the conferring of it by the most Rev. Archbishop Henrich, of St. Louis. The beretta is a small head-cap, sometimes called the *zuichito*.

On June 11 the Rt. Rev. Bishop Hendricken, of Providence, R. I., died. (See page 682.) The cathedral at Providence, one of the handsomest ecclesiastical edifices in the country, was begun by him. Another great loss to the American hierarchy was that of the Rt. Rev. Bishop Shanahan, of Harrisburg. (See page 699.)

The death of Cardinal Guibert, Archbishop of Paris, took place on July 8, 1886. Cardinal Guibert was a remarkable figure in French annals. To the last he was the friend of Victor Hugo, whom he had offered to visit while Hugo was expecting death, and the cardinal himself was very ill. (See page 716.) The deaths of Mother Hardy, Assistant-General of the Ladies of the Sacred Heart, and of Mother Angela, of the Congregation of the Holy Cross, were deeply lamented by the religious communities of the United States. That of James D. McMaster, the veteran editor of the New York "Freeman's Journal," took place on December 29. He was buried on the last day of the year. Even those who differed most violently with his opinions, united in honoring his courage and talents. Mr. McMaster was of Scotch descent, a native of the State of New York, his father having been the Rev. Gilbert McMaster, a Presbyterian minister. He was born on April 1, 1819. He was a convert to the Catholic Church. On March 4, 1887, the famous Father Beckyx died. Father Beckyx was General of the Society of Jesus. He was born at Sichem, in Brabant, in 1795. He entered the novitiate of the Jesuits Oct. 29, 1819, and was elected general in 1853, on the death of Father Rosthan. He was succeeded by Father Anduledy, his assistant. In 1886-'87 the College of Cardinals lost Cardinals Innocent Ferrieri, born in 1810; John Baptist Franzilin, of the Society of Jesus, born April 15, 1816; Louis Mary Joseph Eusebius Caverot, born May 26, 1806, who was Archbishop of Lyons; Americo Ferriera dos Santos Silvas, born Jan. 16, 1829; James Cattoni, Archbishop of Ravenna, born Jan. 13, 1823; and Louis Jacobini, the Pontifical Secretary of State, born in 1832.

The negotiations between the Holy See and Germany culminated in an *entente cordiale*. The Pope advised the Catholics of Germany to support the septennate bill, and, in return, Prince Bismarck began destroying the work of the Kulturkampf and abrogating the May laws, which had weighed on the Catholics of Germany like an interdict. In France, the republic seemed bent on an entire divis-

ion of church and state, and the laicization of the hospitals and schools still continued. In Italy, the attitude of the Vatican and Quirinal still remained the same, though there were rumors, not entirely without foundation, that the Pope would be offered a small independent territory. In China, the massacres of Christians were periodical. In Japan, the Church made some progress, enough to make the missionaries very hopeful. The first high pontifical mass since the Reformation, was celebrated at Copenhagen, Denmark, on Jan. 24, 1886.

A movement to erect a monument to Orestes A. Brownson, the celebrated publicist, in Central Park, New York city, was begun, the remains of Dr. Brownson having, on June 16, been transferred to the Brownson Memorial Chapel, at the University of Notre Dame, Indiana. On March 15, in private consistory, the Pope created the following cardinals: Mgr. Camillo di Rende, Archbishop of Benevento, and Nuncio at Paris; Mgr. Rampollo de Zindoro, Archbishop of Eraclea; Mgr. Vannutelli, Archbishop of Nicea, and Nuncio to the court of Austria-Hungary; Mgr. Masella; and Mgr. Luigi Giordani, Archbishop of Ferrara. On Thursday, March 17, the new cardinals, including Gibbons and Taschereau, who had gone to Rome, received their hats in a public consistory. Cardinal Gibbons's argument against the condemnation of the Knights of Labor in the United States by the Pope, was heard with attention, and no adverse action was taken.

RUSSIA, an empire in northeastern Europe and Asia. The Emperor possesses supreme legislative, executive, and judicial powers, and is the spiritual head of the state Church. The Government is carried on through the Emperor's Cabinet, which was composed in 1886 as follows: Minister of the Imperial Household, Count Vorontzoff Dashkoff; Minister of Foreign Affairs, Nicholas de Giers; Minister of War, Gen. P. Vannovski; Minister of Marine, Admiral Shestakoff; Minister of the Interior, Count Tolstoi; Minister of Education, M. Delianoff; Minister of Finance, M. Bunge; Minister of Domains, M. Ostrovski; Minister of Roads and Communications, C. Possiet.

On Dec. 28, 1886, Bunge, who was the only member of the Cabinet with liberal sympathies, was replaced by Vyshnegradski, a Conservative of the Katkov school, who was formerly director of the St. Petersburg Polytechnic Institute, and afterward a manager of railroads and of the St. Petersburg water-works. (For area and population, see "Annual Cyclopaedia" for 1884.)

The Army.—The strength of the standing field army on Jan. 1, 1885, was 21,832 officers, and 590,264 rank and file. There were 824 battalions of infantry numbering 451,161 men, commanded by 15,116 officers; 330 squadrons of cavalry, with 2,627 officers and 51,270 men; 342 batteries of artillery, with 3,273 officers, 68,371 men, and 1,532 guns; and 30 battal-

ions of engineers, numbering 816 officers and 19,462 men. The number of staff-officers was 1,895. The reserve troops numbered 99,345, with 4,325 officers; the depot troops, 401 officers and 18,014 men; local and fortress troops, 1,937 officers and 97,778 men, with 240 guns; the Cossack troops, 285 *sotnias* of cavalry, 50 *sotnias* of infantry, and 21 batteries of artillery, with 100 guns, numbering 2,169 officers and 44,920 men. The total effective of the army on the peace footing was 890,264 men of all ranks. The war effective is reckoned at 1,769,248 men in the regular army, 185,000 Cossacks, and 6,331 irregulars, making altogether 1,960,579 men, with 366,354 horses, and 3,876 pieces of artillery. The territorial army and other troops make the total war strength of the army nearly 3,000,000.

The Navy.—The Baltic fleet in 1886 comprised 30 armored vessels, 1 unarmored frigate, 6 corvettes, 4 cruisers, 15 gunboats, 95 torpedo-boats, and 13 armed and 59 other steamers. The Black Sea fleet consisted of 7 armor-clads, 27 armed steamers, 59 other steamers, and 16 torpedo-boats. In the Caspian Sea there were 12 armed steamers, and 8 in Siberia. The most powerful vessels in the navy are the "Catharine II," "Tchesma," and "Sinope," launched in 1886, each of which has 16 inches of armor and a displacement of 10,180 tons, and carries 6 12-inch and 12 6-inch guns. Their speed is 16 knots. The "Tchesma" and the "Catharine II," the first vessels of the new Black Sea fleet, were launched in the presence of the Emperor in May, 1886. New ships are being added to the navy with great rapidity. They are built as far as possible in Russia. A plan for the construction of 90 new ships within twenty years was adopted in 1882. The projected new vessels include 10 ironclads of 10,000 tons and 4 of 7,000 tons for the Baltic, and 6 of the larger dimensions for the Black Sea. Russia now leads all countries in the number of her torpedo-boats, which is said to be 175. A new torpedo-cruiser, the "Ilyin," constructed of steel, steaming 20 knots an hour, was tested in November.

Finances.—The public debt on Jan. 1, 1886, comprised specie loans of 344,198,535 rubles, 71,222,000 florins, 125,896,590 pounds sterling, and 555,765,000 francs, and loans redeemable in paper currency amounting to 3,199,810,207 rubles.

Agriculture and Industry.—Of 1,018,736,800 acres on the land registers in 1882, 23,143,600 acres belonged to towns, monasteries, and other institutions, 252,103,000 to land-owners and companies, 317,534,500 to peasant communes, 406,064,900 to the Crown, and 19,890,800 were attached to the imperial domains. The peasants holding land in common numbered 22,396,069 adult males. The noble proprietors numbered 114,480, and their aggregate estates embraced 197,146,500 acres. In European Russia the forests cover 39 per cent. of the total area, and in Finland 57 per cent. The

cereal production of European Russia, exclusive of Finland and Poland, in 1884, was 32,348,000 quarters of wheat, 80,554,000 of rye, 16,850,000 of barley, 60,720,000 of oats, and 19,300,000 of other crops. The potato product was 35,830,000 quarters. The annual production of hemp is about 1,800,000 cwt., with 1,800,000 quarters of seed; that of flax 6,400,000 cwt., and 2,900,000 quarters of linseed. There were 139,115 acres devoted to tobacco in 1883, producing 1,192,000 cwt.

The product of gold in 1882 was 79,452 lbs.; of silver, 17,604 lbs.; of platinum, 8,964 lbs.; of pig-iron, 448,207 tons; of steel, 240,000 tons; of coal, 3,653,800 tons; of naphtha, in 1884, 20,000,000 cwt.; of refined oil, 4,600,000 cwt.

Navigation.—The number of vessels entered during 1884 at the ports of the Baltic was 6,582; in the White Sea, 638; in the Black Sea and the Sea of Azov, 4,624; in the Caspian Sea, 1,431; total, 18,225, of which 8,181 were steamers. The total number cleared was 13,168, of which 8,161 were steamers. The total number entered with cargoes was 7,433, of which 4,577 were steamers; the number cleared with cargoes was 11,605, of which 7,212 were steamers. The number entered under the Russian flag was 2,748; under the English, 2,813; under the German, 2,115; under the Swedish and Norwegian flags, 1,577; under the Turkish, 657; under the Greek, 886. The number of coasting voyages was 35,883. The mercantile marine in 1883 consisted of 2,139 sailing-vessels, of 467,740 tons, and 204 steamers, of 157,696 tons.

Railroads.—The railroad network in 1886 comprised 16,025 miles of railroads, not including those of Finland or the Trans-Caspian line, which on Jan. 1, 1886, had a length of 515 miles. The receipts in 1885 were 230,171,000 rubles. The payment of guaranteed interest and other subsidies to the railroads constitutes a heavy burden on the national revenue. The first railroads were built by the state, but afterward the business was transferred to private companies, to which the Government advanced capital. Of the sum of 2,210,000,000 rubles expended on railroads up to 1883, 54 per cent. was furnished by the state, the money being raised by loans. On the remaining 46 per cent. a minimum rate of profit was guaranteed. Various supplementary advances have been made to the companies, which have not yet begun to pay off any portion of the debt.

The Post-Office.—The number of private letters carried in the mails during 1884 was 133,963,987; the number of postal-cards, 11,614,039; the number of registered letters, 11,062,492; the number of money-letters, 9,994,543, of the total value of 12,199,976,984 francs; the number of newspapers, 100,435,584; the number of circulars, 16,926,561. The receipts in 1884 were 64,470,416 francs; the expenses, 69,938,864 francs.

The Agrarian Question.—The exports of grain

increased from 9,000,000 quarters per annum in 1860-'64 to 10,000,000 quarters in 1865-'69, 21,000,000 quarters in 1870-'74, and 33,000,000 quarters in 1875-'79. In 1880-'85 the average was the same. The crops, though fluctuating from year to year between 156,250,000 and 231,750,000 quarters, have not increased on the average. The larger exports have left a smaller quantity for home consumption, notwithstanding the increase in the population. Although many capitalists have grown rich out of the export trade, the average quantity of cereal food consumed by the people is one seventh less per head of the population than it was before emancipation. Wheat-bread is never eaten now by the peasantry. A large part of the rye and oat crop is also exported. The exports of cattle have increased thirteen-fold since 1864, and the number of cattle in the country has greatly diminished. After emancipation the peasants received on the average three or four *desiatines* of land, or from eight to ten acres, which was less than their allotments as serfs, and insufficient to supply them with food. With the increase in taxation, they were obliged to pay in taxes as much, and in some provinces double or treble as much, as the product of their land would bring. One half or two thirds of their time they work on the land of the nobles or the large farmers. From one third to one half of their whole income is required for taxes. In years of exceptionally good harvests the peasants have more to do on their own land, and the larger cultivators must pay such high wages to harvesters that crops of less than fourteen to one are not reaped in the provinces of the middle Volga, though that is double the average yield of grain in that district. The normal yield throughout Russia is only four bushels of grain to one of seed. In poor years the peasantry travel long distances for work, and wages go down to starvation rates. An ever-increasing proportion of the Russian peasantry are sinking into a state of bondage, from which they can not extricate themselves except occasionally with the help of relatives. The work performed under such conditions is never of the same quality as free labor, but the latter costs several times as much. The employers make up for poor crops by extending the area of cultivation. The men that acquire wealth the most rapidly are the peasant capitalists, who gradually get possession of the village lands, and hold their poorer neighbors in bondage. About one third of the

population of Russia proper, or 20,000,000 persons, equal to the number of serfs existing before emancipation, have sunk into the condition of agricultural proletarians. Agriculture has gone backward, and the condition of the peasantry is much worse than before the freeing of the serfs.

Reported Insanity of the Emperor.—During the Bulgarian crisis, when the diplomacy of Europe was scandalized by the support given by Russia to the conspirators who abducted Prince Alexander, and by the high-handed proceedings of Gen. Kaulbars, reports were spread from Vienna that the Czar, who was known to have taken the direction of foreign affairs into his own hands, had begun to show symptoms of hereditary insanity.

Batoum.—On July 3 the Russian Government notified the English ministry that it had canceled the clause in the Treaty of Berlin in relation to the fortification of Batoum. At the Berlin Congress the British plenipotentiaries objected to the cession of any Asiatic territory to Russia, and, when they at last acceded, they bound her not to construct fortifications at Batoum, and to make that place a free port. The freedom of trade was abolished in a ukase that went into force on July 17, 1886. The reason for keeping Batoum a free port was declared to have been removed by closing the free transit of goods through the Caucasus to Persia, which had been done two years before. The article in the treaty relating to Batoum declared the Emperor's "intention to constitute Batoum a free port, essentially commercial." In revoking this declaration, which was described as voluntary and spontaneous, although it was the result of long negotiations, the Russian Government contended that it committed no breach of the treaty. English travelers have for several years past called attention to repairs of the Turkish fortifications, and to the accumulation of heavy guns and all the munitions of war in the arsenal just outside the free port. In the autumn Krupp guns were mounted on the redoubt at the entrance of the harbor, a new battery was made, and earthworks were thrown up along the shore.

Rostov.—The mouth of the Don has been re-united to the territory of the Don Cossacks. The important commercial town of Rostov, the emporium of the Sea of Azov, is by this decree separated from the government of Ekaterinoslav, and becomes a part of the Cossack province. The trade has been carried on partly by Greeks, but mostly Jews.

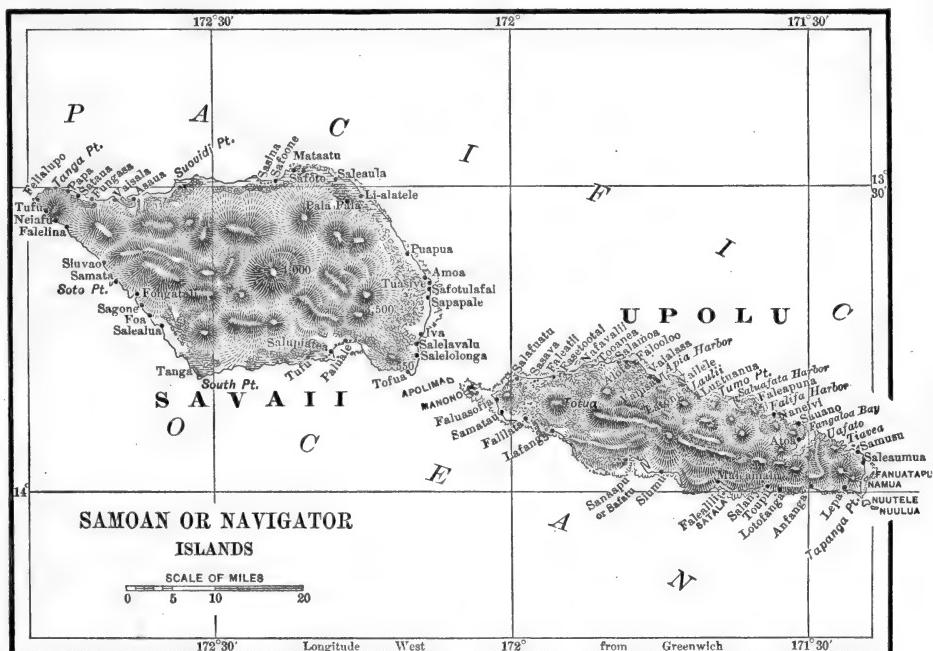
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SAMOAN (or NAVIGATOR) ISLANDS. For several years the question of permitting a continuance of the autonomy of these islands has been discussed by the governments of England, Germany, and the United States; more

particularly by Germany, on account of the heavy interest in the islands held by the Deutsche Handels und Plantagen Gesellschaft der Südsee Inseln zu Hamburg, a German company controlling much of the trade of the

Western Pacific. The twelve Samoan Islands, of which all but one (Rose) are of volcanic origin, contain 600,000 acres of cultivable land. Of this the Hamburg Company owns and cultivates from 10,000 to 15,000 acres, being nearly all there is under cultivation by foreigners. Here are grown for export, cotton, cocoanuts, and coffee, while experiments have been made with cocoa, tobacco, and cinnamon, the staple article of produce for export, however, being *copra*, the dried kernel of the cocoanut. As long ago as 1877, the Samoan chiefs petitioned the British Government to establish a protectorate over the islands, but were refused. In 1879 Germany obtained a treaty securing certain privileges, and soon afterward Great Britain

praying for the establishment of British authority over the islands, and alleging that he had signed the agreement with the German consul-general from fear. Finally, early in 1885, the Samoans actually passed an act establishing annexation with New Zealand, and this was sent to the Government of the latter colony in March, but was not concluded. The Samoans, in passing this act, claimed that the German officials interfered in their affairs, and, in fact, a party of sailors and marines from the German man-of-war "Albatross" landed on one of the islands and hoisted their flag, when the Samoan King and his followers fled. The American consul at Apia telegraphed to the United States Government an announcement



and the United States made similar treaties. In 1881 the Reichstag discussed the question of annexation, but declined to take the step. But the Germans were pushing their colonization schemes in the Pacific, and in 1884 a treaty was entered into between that country and Great Britain, by which these powers bound themselves to respect the independence of the Samoan Islands. Despite this, in November, 1884, the German consul-general at Apia, the chief city of Samoa, concluded an agreement with the Samoan King, which practically gave Germany supreme control, and an effort made by New Zealand in January, 1885, to effect annexation proved fruitless on this account. But, on Nov. 11, 1884, the King of Samoa had addressed a letter to the Queen of England,

of this act on the part of the Germans; but the Foreign Office at Berlin disavowed it. As a fact, the flag of the King was pulled down by Dr. Steubel, the German consul-general, with a party of armed sailors.

In the mean time, internal troubles had sprung up in Samoa, owing to the appearance of a rival claimant for the throne. The sovereignty over the islands was in the hands of King Malietoa, whose title was said to have come down to him through an unbroken line of kings for five hundred years. A chief, named Tamesese, held the title of vice-king, and up to 1886 had lived quietly at Apia. The title of Malietoa was, in fact, unquestioned, and the treaties that had been made with Samoa by the Governments of Germany, Great Britain, and

the United States, had all been concluded with him. But now the intriguing of the Germans awakened such ambitious hopes in the mind of Chief Tamesese that he consented to set himself up as a claimant for the throne. The action of the Germans in tearing down the Samoan flag was a part of this programme, the excuse offered being the charge that King Malietoa had failed to keep the agreement made with the German consul-general. This treaty provided for a mixed court to try offenses committed by Germans against Samoans, or *vice versa*, the court to be composed of two Samoans and two Germans, and to be presided over by the German consul-general. It was further provided that all laws and statutes affecting the people of the two nations should be passed upon by this court. Although there was an article stipulating that all laws should have the approval of the King before they became operative, and although the King signed the treaty under a misunderstanding of its purport, he soon discovered that it would transfer all power to the hands of the Germans, and it was therefore never made effective.

Such was the condition of affairs in May, 1886, when three large German vessels of war entered the harbor of Apia. The admiral did not offer to recognize King Malietoa in any way, but, after a stay of a few days at Apia, took his vessels to Fasetootia, another port, where Tamesese had established himself, and there landed with the band of the flag-ship, and amid great ceremonial.

There the admiral met Tamesese and his principal followers, when addresses were made on both sides. Of two of them the following are exact translations, having been taken down by a native missionary on the spot:

Address of the Admiral: These gentlemen have come here in order to have an interview with you, the *Tuemua* and his faithful friends. I gratefully thank your Majesty, the King, this day. I have been discouraged, but now I look upon you as my friend, together with your government. I wish to make known to your Majesty that this is, as it were, the visit of a swift forerunner, but the purport of our visit is, that we may see your Majesty and your government. Let your government conduct quietly its affairs, for the time is near when a decision will be reached. Great, indeed, is my joy to-day at our interview. I exhort you to do all things quietly, for your government is truly established, and is indeed very strong.

Reply of Tamesese: What you say is very good. I also rejoice; but my opinion is, there should be one government. Then wars will cease in Samoa, for there are certain men who are a continual hindrance to us, and wish to rebel against this government.

While these proceedings were in progress, United States Consul Greenebaum was appealed to by King Malietoa in the following letter:

GOVERNMENT HOUSE, APIA, May 13, 1886.

To the Hon. Berthold Greenebaum, United States Consul. As the kingdom of Samoa has applied to the United States of America for assistance and protection, and, as it is said that some of the Samoan people, now unhappily in rebellion against my authority, are fearful that the guns of American and English men-of-war will be turned against them, we desire you to

issue a proclamation to allay such fears, and to bid all people in Samoa to be quiet and orderly, and to go to their own villages, and there live in a peaceful and orderly manner.

MALIETOÀ, *King of Samoa.*
SELU, *Secretary of State.*

This was promptly responded to by the issuing of the following proclamation:

In obedience to the request of his Majesty King Malietoa, I, the undersigned, Berthold Greenebaum, United States consul in the kingdom of Samoa, in the name of the United States of America, and by virtue of the command of King Malietoa, above set out, do hereby order all people within this kingdom to live peaceably and quietly, and also order all persons who may have assembled for the purpose of opposing the government of King Malietoa, forthwith to disperse to their several homes, and there dwell peacefully. And I hereby state that no English or American warship will be requested by me, acting as and for the United States of America and his Majesty King Malietoa, to fire upon or otherwise molest any of the subjects of this or any other country, unless for the preservation of life and property, or the punishment of crime.

The United States of America desire that happiness, peace, and prosperity may be enjoyed by Samoa, and trust that the difficulties hitherto retarding the progress of these islands will soon be overcome, and that by reviving commerce, and with an established government, the great natural resources of this kingdom may be peacefully developed, so that the welfare, both of individuals and the community, may be secured.

BERTHOLD GREENEBAUM, *U. S. Consul.*

APIA, SAMOA, May 14, 1886.

By order of the United States consul, the Samoan flag was now hoisted with the United States flag over it, upon the same halyards, thus indicating and announcing the protectorate over Samoa assumed by the United States. As soon as this conclusion was promulgated, the German fleet sailed away from the Samoan islands. The act of the United States consul is said to have aroused the greatest enthusiasm among the Samoans, crowds of whom gathered in front of the government building in Apia, shouting and cheering. A few days later the U. S. steamer "Mohican" arrived at Apia, and it is alleged that the action of the United States consul was approved by the captain of the "Mohican," by the British consul, and by the British residents; but Dr. Steubel, the German consul, entered his protest against the action of Consul Greenebaum, and issued the following proclamation:

It is well known by all Samoa that negotiations are at present being carried on between the three great powers, with a view to bringing about that which will conduce to the prosperity of Samoa. These negotiations are not yet complete. For this cause German ships of war have left Samoa without inquiring into the transgressions of treaties and other violations of law recently committed by Malietoa. But these have been made known to the Government of Germany, in consequence of which the German flag has been kept flying at Moule-Nouhon Point. On this account nothing done by Malietoa during recent days is of any value whatever. It is quite impossible that protection can be extended over the Government of Samoa by the American consul before such instructions have been received from his own Government. Hence the hoisting of the American flag over the flag of the Government in Apia is of no value whatever. I emphatically protest against that act, and I exhort all Samoa to place no reliance upon it. It is of no value whatever, for they are committing acts which

will cause serious trouble, since Samoa alone will be held responsible for the consequences of such acts.

DR. STEUBEL, *German Consul-General.*

APIA, May 21, 1886.

The proclamation and other action of Consul Greenebaum, and the presence in Samoan waters of a United States war-vessel, now encouraged King Malietoa to endeavor to bring matters to a crisis. On May 23 he planned an attack on the rebels, ordered beacon-fires to be lighted, and summoned the loyal natives from the neighboring islands of Savaii, Manono, and Apolima. During the night of the 23d and the following day about 2,000 warriors silently gathered in and around the territory occupied by Tamesese and his adherents.

The foreign consuls met on the evening of the 24th, on board the "Mohican" (Capt. Day), when it was decided to visit Tamesese on the following morning, and endeavor to prevent an outbreak of hostilities. Accordingly, on the morning of the 25th the "Mohican" left the harbor of Apia and anchored off Fasetoitia, where the rebel flag could be seen flying over their camp. A communication was at once sent to Tamesese, inviting him to a conference, to which he acceded, but not until a peremptory demand had been made for his presence. The conference was held; but all efforts to bring Tamesese to terms proved abortive. Relying on the assurances he had received from the German admiral and consul-general, he declined all overtures that included acknowledgment of King Malietoa as the legitimate King of Samoa. A consultation ensued among the foreign officials, which resulted in a note being sent to Malietoa, demanding that peace should be maintained, and that all armed men should be prevented from crossing the border.

On the 26th the armies still confronted each other, and rumors of skirmishing and the capture of a few prisoners reached Apia. By invitation of Capt. Day, the foreign consuls again met for a conference on board the "Mohican." The municipality is governed by a board of all the foreign consuls and several of the merchants of Apia. A proposition was made by the British consul that the King should be temporarily suspended, and that the board should extend its functions beyond the limits of Apia, in order to control the affairs of the kingdom. This was lost through the strenuous opposition of Consul Greenebaum. A compromise was finally agreed upon, and the following proclamation was issued:

We, the consuls of Germany, Great Britain, and the United States, give notice that we and our Governments do not, and never have, in any way recognized Tamesese as King of Samoa, and order all Samoans to return to their homes, and remain quiet and peaceful. And we further demand the continued enforcement of the convention, especially with regard to the neutral territory of Apia.

DR. STEUBEL, *Imperial German Consul-General.*

WILFRED POWELL, *H. B. M. Consul.*

B. GREENEBAUM, *United States Consul.*

APIA, May 27, 1886.

On the same day King Malietoa met the foreign consuls and the captains of the British corvette "Diamond" and the United States steamer "Mohican." At this conference it was formally decided that Malietoa should be officially addressed by the German consul-general in a communication, in which he should be recognized as the King of Samoa, and that Tamesese should surrender his fort and disband his army, being granted until June 2 to comply. These terms were accepted and eventually carried out. When U. S. Consul Greenebaum communicated his action to the State Department at Washington, he was recalled, and, for having overstepped the limits of his functions in declaring an American protectorate of the Samoan Islands without authority from the United States Government, his resignation was requested.

The population of the Samoan Islands is estimated at 56,000. The exports of Samoa include cocoanuts, copra, Chili peppers, limes, lime-juice, bêche-de-mer, sharks' fins, and cotton. The exports from 1875 to 1880 to San Francisco amounted to \$75,610.74. In 1883 the entire imports amounted to \$244,980; exports, \$274,371; in 1884, imports, \$200,385; exports, \$358,628. The trade with the United States in 1883 was: imports, \$124,181; exports, \$14,000; in 1884, imports, \$116,962; exports, \$25,000. The native Samoans are indolent, and live in a fashion of communism, and the agriculture of the islands is chiefly in the hands of the Germans, who also monopolize most of the trade, although there are a few English and American firms in Apia. Meanwhile there are vast tracts of marvellously fertile land uncultivated, where sugar and coffee could be raised with the minimum of labor and expense. The cultivation of cotton was begun in Samoa at the time of the American civil war. The average product is a bale of sea-island cotton to the acre. The production of copra is about 6,000 tons annually, worth from \$75 to \$100 a ton. Coffee grows well, and also tobacco; experiments with cinchona have not proved successful. The labor on the German plantations is imported under contract.

The entire interior of the Samoan Islands is a vast forest, much of which has never been explored. The climate is healthful, and the natives bear a high reputation for virtue and honesty. These islands lie in the track of the steamers that ply between San Francisco and Australia, but do not touch at them. American consuls at Apia have all reported favorably on the feasibility of increasing the trade of the islands with the United States, and of more fully developing their agricultural resources.

SEA-SERPENTS. The belief in the existence of gigantic sea-serpents is of great antiquity. Aristotle, Pliny, Valerius Maximus, and other early writers gave credence to tales of sea-monsters, and scientists of the nineteenth century are by no means agreed in their opinions

as to the existence or non-existence of enormous sea-serpents. Sea-snakes, true marine ophidians, are more common in tropical seas than is generally supposed. They are found most abundantly in the Indian Ocean, but have an extensive geographical range, and between forty and fifty species are known. They are all highly poisonous, and some are so ferocious that they more frequently attack than avoid man. The greatest length to which they are known to attain is twelve feet. To suit their aquatic habits, their form and structure differ from those of land-serpents. The tail is compressed vertically, flattened from the sides, so as to form fins, like the tails of eels, by which they propel themselves; but, instead of tapering to a point, it is rounded off at the end, like the scabbard of a cavalry-sabre. Like other lung-breathing animals that live in water, they are also provided with a respiratory apparatus adapted to the circumstances and requirements of their lives; their nostrils, which are very small, being furnished, like those of the seal, manatee, etc., with a valve.

But when we speak of the great sea-serpents that from time to time have appeared to wondering men, we mean animals different from these sea-snakes. Such were the marine monsters that, during the summer months of 1886,

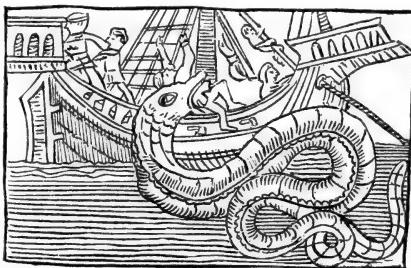


JONAH AND THE WHALE.

visited various portions of the eastern coast of North America, of whose previous appearance in various portions of the globe we find numerous records. In the museum of the Lateran Palace in Rome is a collection of coffins of early Christians, found in the Catacombs, sculptured with Scriptural designs, one of which represents the adventure of Jonah and the "whale." In this representation, Jonah is being swallowed feet foremost (or possibly being ejected, head first) by an enormous sea-monster, which has the chest and forelegs of a horse, a long, arching neck with a mane at its base near the shoulders, a head like nothing known to-day in nature, but having hair upon and beneath the cheeks, while the hinder portion of its body is that of a serpent of prodigious length. Experts have placed the date of this sculpture at about 230 A. D.

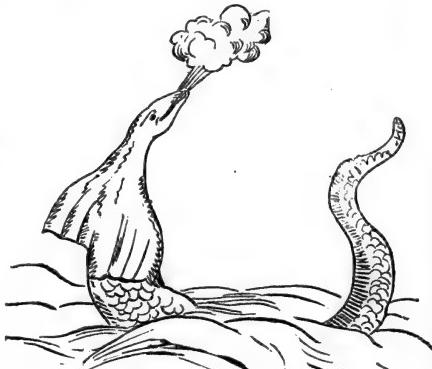
Coming to more recent times, we find numerous traditions about the sea-serpent among the Scandinavian nations. Olaus Magnus, Archbishop of Upsala, who wrote in 1555, gave, in his amusing and instructive history, an account of several marine monsters, one of which is represented in the accompanying picture.

The Rev. Hans Egede, who has been called "The Apostle to Greenland," in his journal of a voyage thither, notes the appearance of a marine monster that was sketched by one of his fellow-voyagers, Mr. Bing.



SEA-SERPENT, AFTER OLAUS MAGNUS.

Of this monster Mr. Egede says: "On the 6th of July, 1734, there appeared a very large and frightful sea-monster, which raised itself so high out of the water that its head reached above our maintop. It had a long, sharp snout, and spouted water like a whale, and very



MONSTER DESCRIBED BY EGEDE.

broad flappers. The body seemed to be covered with scales, and the skin to be wrinkled and uneven, and the lower part was formed like a snake. After some time the creature plunged backward into the water, and then turned its tail up above the surface—a whole ship's-length from its head."



PANTOPPIDAN'S SEA-SERPENT.

Bishop Pantoppidan, of Bergen, Norway, was the author of a natural history in which appears the picture of a sea-serpent whose length was said to be about 600 feet, whose diameter was that of two hogsheads, and

whose color was dark brown, variegated with light spots or streaks.

The bishop also cites a letter, dated 1751, from Capt. De Ferry, of the Swedish Navy, relating to a snake seen by him near Molde on a calm, hot day in August, 1746. He (Capt. De Ferry) fired at it, whereupon it immediately sank. The head, he relates, was like that of a horse; the mouth was quite black, and very large; the eyes were black, and there were seven or eight folds or curves about six feet apart.

The sea-serpent was by no means a stranger to the mariners on the New England coast. Capt. Eleazer Crabtree, with several of his neighbors, saw a large serpent in the Bay of Penobscot, in 1778. The animal is described as about 100 feet long and about 3 feet in diameter, and held his head four or five feet above the surface of the water. In May, 1780, Capt. George Little, commanding a public armed ship of the colonies, while lying in Round Pond in Broad Bay, discovered a large serpent coming down the bay. He immediately ordered the cutter to be manned and armed, and in it he pursued the monster as far as Muscongus Island. This serpent was described as resembling a very large specimen of a common blacksnake, from 45 to 50 feet in length, and about 15 inches in greatest diameter, and having a head the size of a man's, carried four or five feet above the water. In 1802, a sea-serpent was again seen in the bay of Penobscot, and in July of the same year a marine monster was seen by the crew and passengers of an English packet-ship off the coast of Long Island, who thus described it: "His head was rather larger than that of a horse, but formed like that of a serpent. His body was more than 60 feet in length. His head, and as much of his body as we could discover, was all of a blue color, except a black circle around his eyes."

In 1808 the dead body of an enormous sea-monster was cast up by the waves upon the rocky coast of Stronsa, one of the Orkney Isles. It measured 55 feet in length and about 10 feet



MONSTER OF STRONSA.

in circumference, and was furnished with a kind of mane, or ridge of bristles, which extended from the shoulder to within $2\frac{1}{2}$ feet of the tail. These bristles while moist, were luminous in the dark. The animal was provided with fins or swimming-paws, which measured 4 feet 6 inches in length. A drawing was made of it, of which the illustration here given is a fac-simile.

In June, 1815, a sea-serpent was seen off Plymouth, Mass., and chased by several old whale-men. In August, 1817, it appeared in the harbor of Gloucester, and in the same

month was seen within 30 or 50 yards of the "Laura," by Capt. Tappan and the crew of that vessel. They described it with considerable minuteness, as follow: "He was formed like a serpent. His tongue was thrust out, and appeared about 2 feet in length; this he raised several times over his head, and then let it fall again; it was of light-brown color, and the end of it resembled a harpoon."

In 1819, a veritable sea-monster made several appearances along the New England coast. On the morning of June 6 he was encountered by the sloop "Concord," on a voyage from New York to Salem, 15 miles northwest of Race Point. He was described as being perfectly black, with a head like a snake's, about as long as a horse's head, and elevated from four to seven feet above the water, while on his back were bunches about as large as a half-barrel. In August of the same year, he was seen by several hundred persons at Nahant, and they reported him to be about 60 feet in length. On the 26th of the same month, the U. S. Schooner "Science" was surveying Gloucester harbor, when a sea-serpent rose within 40 yards of one of her boats. He was described as being dark-brown, with white under the throat. His head was about 3 feet in circumference, and smaller than his body, and he was from 100 to 130 feet long. Upon his back were 13 or 14 protuberances, the first one 10 or 12 feet back of the head, decreasing as they approached the tail. After observing him for a little while, several of the officers in the boat landed at a point where they could continue to observe the monster, while the boat was dispatched to bring up the schooner; but before that vessel arrived, the serpent disappeared.

On June 16, 1826, while the ship "Silas Richards" was off St. George's Banks, a sea-serpent appeared close by her bow. He was seen by several of the crew and passengers, and among the latter by Mr. Warburton, "an eminent merchant and member of the firm of Barclay Brothers & Co., of London." In the "American Journal of Science" this gentleman described him as about 60 feet long, with humps upon his back like those of a dromedary.

In July, 1830, a party of fishermen off the New England coast were frightened by a serpent that rose within a short distance and immediately came within six feet of the vessel, raised his head, and looked over the deck. The party on board fled to the cabin, and, when they emerged again, the serpent had disappeared.

In 1833 the sea-serpent appeared twice. On May 15 a party of five English officers stationed at Halifax were sailing in a yacht, when a creature like a huge snake, about eighty feet in length and with head elevated, passed within 150 or 200 yards of their vessel. In July of the same year a sea-serpent visited Boston Bay, and several parties were organized to capture him, but he eluded his hunters.

Perhaps the most curious appearance of the sea-serpent was on Aug. 6, 1848, when it was seen by the "Dædalus," a British frigate homeward bound from the West Indies. It was first sighted about five o'clock in the afternoon, approached very near the ship, and remained in sight about twenty minutes. Several of the officers and many of the crew saw it very plainly. It was described as an enormous serpent, with head and shoulders kept about four feet above the surface, nearly sixty feet in length, dark brown and yellowish white about the throat.

On July 8, 1875, the officers and crew of the "Pauline" observed three large sperm-whales, and one of them was gripped around the body

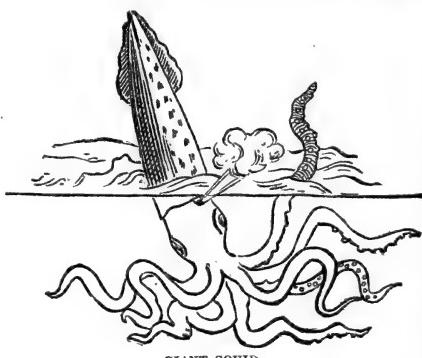
so that the end of the squid's body has been compared to an arrow-head. It is a habit of these squids, the small species of which are met with in some localities in teeming abundance, to swim on the smooth surface of the water in hot and calm weather. The arrow-headed tail is then raised out of the water to a height that in a large individual might be three feet or more, and as it precedes the body, which moves at the rate of several miles an hour, it, of course looks, to a person who has never heard of an animal going tail first at such speed, like the creature's head. Calamaries or squids of the ordinary size have from time immemorial been among the commonest and best known of marine animals in many seas; but, only a few years ago, any one that expressed his belief in one formidable enough to capsize a boat or to pull a man out of one, was derided for his credulity. We now know that their existence is no fiction, for squids have been captured measuring over fifty feet.



SERPENT AND WHALE.

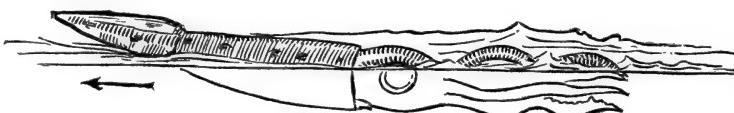
with two turns of what appeared to be a huge serpent. The head and tail appeared to have a length beyond the coils of about thirty feet, and its girth eight or nine feet. The serpent whirled the whale round and round, and then suddenly dragged him to the bottom, head first. A rough drawing was made of this extraordinary scene, and a copy of it is here given.

Numerous appearances of the sea-serpent were reported in 1886; but in no instances were the observers near enough to make new discoveries as to its shape or formation. Various hypotheses have been advanced by scientific men to account for these appearances. Thus it has been claimed that a calamary (or giant squid), swimming on the surface of the sea, would present the appearance described by so many observers as peculiar to the great sea-serpent; and it has been urged that it



GIANT SQUID.

The sea-serpent has again been supposed to be of the race of some antediluvian monster, and the conjecture that there may be in existence some congeners of these great reptiles is not inconsistent with zoological science; for it seems not unlikely that some undescribed form exists which is intermediary between the tortoise and the serpents.



GIANT SQUID.

was the same animal, rising to the surface to blow, that was seen by Mr. Egede.

When swimming, these squids propel themselves backward by the outrush of a stream of water from a tube pointing in a direction contrary to that in which the animal is proceeding. The tail part, therefore, goes in advance, and the body tapers toward this. At a short distance from the actual extremity, two flat fins project from the body, one on each side,

SEYMOUR, HORATIO, an American statesman, born at Pompey Hill, Onondaga County, N. Y., May 31, 1810; died in Utica, Feb. 12, 1886. The Seymour family was among the earliest settlers of Hartford, Conn. Henry Seymour, father of Horatio, removed to Onondaga County, N. Y., about the beginning of the century, and in time became one of the leading citizens of the State. He was State Senator, Canal Commissioner, member of the State Council of Ap-

pointment, and second Mayor of Utica, of which place he became a resident about 1821. Horatio Seymour attended school in his native village until he was ten years of age, when he was sent to Oxford Academy. In the spring of 1824 he entered Geneva Academy (now Hobart College), and remained there a year, going thence to Partridge's Military School at Middletown, Conn. He studied law with Greene C. Bronson and Samuel Beardsley, and was admitted to the bar in 1832; though he never practiced his profession, the care of the property he had inherited taking up much of his time. In 1833 he became military secretary of Gov. Marey, and held the place until 1839. On May 31, 1835, he married Mary Bleecker, of Albany.

In 1841 he was elected to the State Assembly as a Democrat; and in 1842 was elected Mayor of Utica by a majority of 130 over Spence Kellogg, the Whig candidate. In 1843 he was renominated, and was beaten by Frederick Hollister, by the narrow majority of 16 votes; but in the autumn of the same year he was again elected to the Assembly, and, in the session that began in 1844 he distinguished himself among men like John A. Dix, Sanford E. Church, and Michael Hoffman. He was chairman of the Committee on Canals, and presented an elaborate report, which was the basis of the canal policy of the State for many years. He advocated the employment of the surplus revenue to enlarge the locks of the Erie and proceed with the construction of the Black River and Genesee Valley Canals, and showed thorough confidence in the development of trade with the West. He was again elected to the Assembly in the autumn of 1844, and was chosen Speaker in the Legislature of 1845. In the bitter quarrel of Democratic factions that followed, Seymour, though known as a "Hunker" and opposed to the "Barnburner" revolt of 1847, was anxious for the harmony of the party. It was as a man acceptable to all factions that he became the candidate of the Democratic party for Governor in 1850; but he was defeated by the Whig candidate, Washington Hunt, by a majority of 262, while Sanford E. Church, his associate on the Democratic ticket, was elected Lieutenant-Governor. In 1852 he was a delegate to the Democratic National Convention at Baltimore, and did all in his power to have the vote of New York cast solidly for William L. Marey, but failed. The same year he was again nominated as the Democratic candidate for Governor, and was elected by a majority of 22,596 over his former competitor, Washington Hunt. During his term there was a strong temperance movement on foot in the State, and the Legislature passed a prohibition law, which Gov. Seymour vetoed. He was opposed to sumptuary legislation in a general way, and to that measure in particular, as unconstitutional. This veto was one of the most unpopular acts ever done by a public man, and provoked intensely

bitter criticism. In 1854 Mr. Seymour was renominated for the governorship, and received 156,495 votes to 156,804 cast for Myron H. Clark, the temperance candidate, 122,282 for Daniel Ullman, the "Know-Nothing" candidate, and 33,550 for Greene C. Bronson, the candidate of the "Hard-shell Democrats." The vetoed law was again passed by the Legislature, was approved by the Governor, and was finally declared unconstitutional by the Court of Appeals. In 1856 he was a delegate to the National Democratic Convention at Cincinnati, which nominated Buchanan and Breckinridge, and he supported the ticket actively in the canvass of that year.

He opposed the policy of the "Know-Nothing" party strongly, and without denying the right of the people of this country to regulate immigration, or even forbid it altogether,



HORATIO SEYMORE.

which he asserted many years afterward in regard to the Chinese importation, he pleaded for a liberal policy toward immigrants.

He presented facts showing that the growth of the North was much more rapid than the growth of the South, and declared that the political power of the country had passed into the hands of the free States. He added: "It will now be seen if the North will use its power fairly. If it does not, the South has the ability, and I hope the spirit, to resist injustice. If it does not do so, it will be untrue to itself, to us, and to the whole country."

In 1857 Mr. Seymour received from President Buchanan the offer of a first-class foreign mission, but declined it; and he took no prominent part in politics until the secession movement began and threatened serious consequences. He was a member of the committee on resolutions at the convention held at Tweedle Hall, Albany, Jan. 31, 1861, after the secession of six States, to consider the feasibility of compromise measures; and he delivered a

speech that was designed mainly to show the peculiar dangers of civil war.

When the war broke out, in the spring of 1861, Mr. Seymour was at Madison, Wis., and the Democratic members of the Legislature, which was then in session, called him into consultation as to the proper course of political action. He counseled the simple duty of loyalty—to obey the laws and maintain the national authority. He was active in raising one of the first companies of Wisconsin volunteers. When he returned home in the autumn, he spoke at a Democratic ratification meeting held in Utica, Oct. 28, 1861, saying: "In common with a majority of the American people, I deplored the election of Mr. Lincoln as a great calamity; yet he was chosen in a constitutional manner, and we wish, as a defeated organization, to show our loyalty by giving him a just and generous support." He denied that slavery was the cause of the war, and denied that the war should be waged for its abolition. To the fund for the volunteers he contributed liberally. In the winter he delivered an address at Albany on the State and national defenses, for which Gov. Morgan moved a resolution of thanks. At a meeting of representative Democrats held in the State capital in the disastrous summer of 1862, he introduced a resolution that "we were bound in honor and patriotism to send immediate relief to our brethren in the field."

The Democratic State Convention, Sept. 10, 1862, nominated him for Governor. In his address to that body accepting the nomination, he alluded to the convention held in the same hall nearly two years before to urge compromise measures to prevent war. He said: "That prayer for the rights of our people was derided and denounced, and false assurances were given that there was no danger. The storm came upon us with all its fury, and the war so constantly and clearly foretold desolated our land. It is said no compromises would have satisfied the South. If we had tried them, it would not now be a matter of discordant opinion." The main part of his speech was devoted to demonstrating that the Republican party could not, in the nature of things, save the Government. He was elected, defeating Gen. James S. Wadsworth by a majority of 10,752 votes. Perhaps the fairest statement of his position in regard to the war at that era is to be found in the following passage of his inaugural message of Jan. 7, 1863:

The assertion that this war was the unavoidable result of slavery is not only erroneous, but it has led to a disastrous policy in its prosecution. The opinion that slavery must be abolished to restore our Union creates an antagonism between the free and the slave States which ought not to exist. If it is true that slavery must be abolished by the force of the Federal Government; that the South must be held in military subjection; that four million negroes must, for many years, be under the direct management of the authorities at Washington at the public expense; then, indeed, we must endure the waste of our armies in the field, further drains upon our population, and

still greater burdens of debt. We must convert our Government into a military despotism.

This argument against the probability of success along the path that finally led to it was of course supplemented by an unequivocal declaration in favor of the restoration of the Union and the supremacy of the Constitution.

On April 13, 1863, Gov. Seymour sent a special message to the Legislature, suggesting a constitutional amendment as a necessary preliminary to a law allowing soldiers in the field to vote; and on April 24 he vetoed a bill to secure "the elective franchise to qualified voters of the army and navy of the State of New York," on the ground that it was unconstitutional. The amendment that he had recommended was afterward adopted. In everything pertaining to the raising of troops, Gov. Seymour's administration showed conspicuous energy and ability; but especially in the effort made to meet Lee's invasion of the North in the early summer of 1863. For his prompt forwarding of troops on this occasion he received the thanks of the President and the Secretary of War.

On July 4, Gov. Seymour, though exhausted with his labors in forwarding troops, delivered an address in the Academy of Music, New York, criticising sharply the conduct of the Administration in regard to arbitrary arrests, and urging the necessity of preserving harmonious sentiment in the North; but, on the whole, speaking hopefully of the prospects of the nation. Close on this season of glory and usefulness, grim disaster followed. During the absence of the New York militia regiments in Pennsylvania, the draft-riots broke out. On no part of Mr. Seymour's career has bitterer denunciation been based than on his action in this matter. The draft-riots arose out of two alleged grievances, which were afterward abolished. One was the commutation clause in the draft law, which provided that any drafted man who should pay \$300 should be exempt from service. The poor regarded this as a fraud upon them in the desperate lottery of life and death, and the policy of commutation had to be abandoned. The other was a discrimination against New York State and New York city in the allotment of quotas. Two congressional districts in the city were required to furnish more men than New Hampshire and Vermont, and one congressional district in the city was required to furnish twice as many men as a congressional district of the same population in the country. The first warning of danger came from Gen. John E. Wool, in command of the Department of the East, who wrote, under date of June 30, to the Governor that New York city was defenseless. On the same day, Mayor Odyke asked that thirty or forty regiments be organized in the city; and the Governor answered that he would take steps to raise thirty regiments. The draft began in the metropolis on Saturday, July 11. On Sunday the names of those drawn were pub-

lished, and on Monday the rioting broke out. The rioters stopped at no outrage, not even the murder of the innocent and helpless. That night the Governor reached the city. The next day he issued two proclamations, the first calling upon all citizens to retire to their homes and preserve the peace; and the second declaring the city in a state of insurrection. The same day he took measures for enrolling volunteers, and gathering all available troops. On that day also he spoke to the mob in front of City Hall. Then and ever afterward his impromptu speech was the subject of the bitterest criticism. The reports of what he said do not agree, but it seems clear that he promised the crowd that if they had grievances they would be redressed; declared himself their friend, and urged the necessity of obedience to law, and the preservation of order. It is not certain, but very probable, that he addressed the rioters as "my friends." The design of the speech was twofold—to persuade the crowd to disperse, and in any event to gain time for the concentration of the resources within reach to crush out the riot. Under the direction of Gen. Wool, but by the State and municipal authorities, with slight aid from the Federal forces, order was restored within forty-eight hours. The rioting lasted from Monday afternoon until Thursday evening, cost about a thousand lives, and involved the destruction of property estimated at from half a million to three million dollars in value.

At the close of July, Gen. Dix was put in command of New York, and some letters passed between him and Gov. Seymour in regard to the latter's course in the event of a renewal of the draft. Gov. Seymour also exchanged letters with President Lincoln on the subject. He pointed out the injustice done to the State, and especially to the metropolis, in the enrollment, and asked to have the draft stopped, and so secure for New York the privilege of filling her quota by volunteers. This point the President would not concede, though virtually acknowledging that the assignment of quotas in the districts of the State was apparently unfair, and promising that it should not be carried out. A commission, appointed by the War Department to investigate the matter, declared that the enrollment under the act of March 3, 1863, was imperfect, erroneous, and excessive, especially so with reference to the cities of New York and Brooklyn. On April 16, 1864, a Republican Legislature passed a resolution thanking Gov. Seymour for his "prompt and efficient efforts" in pointing out the errors of the enrollment, and procuring a correction of them.

In the State canvass of 1863 the Governor took an active part, making many speeches in the month of October, in defense of his own record and the principles of his party, and attacking the policy of the Administration. On April 22, 1864, Gov. Seymour sent to the Legislature a special message asking that pro-

vision be made to pay the interest on the State debt in gold, as the debt was contracted on a gold basis, and the payment of interest in depreciated paper would injure the credit of the Commonwealth. This action was construed by political opponents as a covert attack on the national credit. On Aug. 30, 1864, the Democratic National Convention assembled at Chicago, and Gov. Seymour presided, refusing to be a candidate for the presidential nomination. He consented to become the candidate for the governorship again, but was defeated by Reuben E. Fenton, Republican, by a majority of 8,293. After the close of the war, Mr. Seymour remained a prominent figure in politics. He made speeches in the State canvasses of 1865, 1866, and 1867, and presided over the State Conventions of his party Oct. 3, 1867, and March 11, 1868.

The Democratic National Convention of 1868 met in New York city, July 4, and nominated Mr. Seymour for the presidency July 9. His name had been frequently mentioned in connection with the nomination, and he had repeatedly declared that he would not be a candidate. There is now no reason to doubt the sincerity of his declarations; for it is known that he was convinced that the true course for the party was to nominate Salmon P. Chase, under whose leadership he considered victory probable through the alliance of disaffected Republicans. Just before the convention, he said that neither inclination nor honor would permit him to accept a nomination. He was made chairman of the convention. The candidates were many, and the contest was bitter. On July 7, North Carolina, on the fourth ballot, cast nine votes for Seymour, and he protested against that action, saying: "My own inclinations prompted me to decline at the outset; my honor compels me to do so now." After twenty-one ballots had been taken in vain, the Ohio delegates determined to withdraw the name of George H. Pendleton, and present that of Mr. Seymour. On the twenty-second ballot Gen. McCook, after a brief and enthusiastic speech, cast the twenty-one votes of Ohio for Horatio Seymour, who at once rose and made a protest as strong as it was possible to make it, closing with the emphatic declaration: "Gentlemen, I thank you, and may God bless you for your kindness to me; but your candidate I can not be." But he could not stay the movement in his favor, and at the close of the twenty-second ballot he was the candidate of the convention, receiving the full vote of the delegates. He allowed himself to be overborne by the enthusiasm of his party, and accepted the nomination in the face of these declarations. That acceptance was the great mistake of his life, and he knew it to be so then, and ever afterward acknowledged it as such. The whole thing was represented by Republican politicians as a trick to secure the nomination, and believed to be so by some of the friends of

other candidates, and it became one of the weakest points of attack in the presidential canvass. It has been said that the New York delegation passed a resolution in favor of transferring the vote of the State from Sanford E. Church to Salmon P. Chase; but it was left to Samuel J. Tilden to choose the time for making the change, and he delayed too long. Mr. Seymour took up the burden of the canvass manfully and made sixty speeches in different States, pointing out the dangers of the reconstruction policy, and criticising the whole course of Republican administration. He was none the less bold and eloquent, though believing his defeat to be a foregone conclusion, as his candidacy had put any Republican revolt out of the question. On Nov. 3, 1868, he carried Delaware, Georgia, Kentucky, Louisiana, Maryland, New Jersey, New York, and Oregon. Mississippi, Virginia, and Texas did not vote, and the rest of the States were carried by Gen. Grant. It was claimed by the Republicans that New York State had only been carried for Mr. Seymour by fraudulent counting in the city of New York. The electoral vote stood 214 for Grant, and 80 for Seymour; the popular vote, 3,015,071 for Grant, and 2,709,213 for Seymour. This defeat virtually closed Mr. Seymour's political career; for, though mentioned in connection with the presidency regularly every four years, offered the senatorship, and nominated for the governorship, he refused steadily to have anything to do with public office.

In many departments outside of politics he was active. He loved farming, and was postmaster of the town of Deerfield, where he made his home in 1864, and he often delivered addresses at agricultural gatherings on the improvement of methods of culture or on the development of facilities for marketing products. He was a member of the Episcopal Church, and frequently took part in its conventions as a lay delegate. He was a member of the commission for the State survey, and was in an especial way the champion of the canal system of the State; and never, to the close of his career, ceased to urge its importance to the commercial supremacy of the State and give counsel for the furtherance of its interests. He was master of everything connected with the history, topography, and institutions of New York. He occasionally contributed a paper to the magazines.

The remote origin of his last illness was a sunstroke, which he suffered in 1876 while overseeing the repairing of roads in Deerfield. He died at the residence of his sister, Mrs. Roscoe Conkling, in Utica, where he had gone with Mrs. Seymour, who had become seriously ill in the beginning of the winter, and who survived him only twenty days. They had no children.

It is safe to say that the Democratic party of New York never had a leader who was so close to the heart of its masses as Horatio Sey-

mour; and though bitterly hated as well as fervently loved, and recklessly abused as well as unsparingly praised, he lived long enough to see all old animosities soften into respect and confidence, while no old affection failed. He was of fair stature, lithely and gracefully built, and had a refined and delicate face, lighted by dark, glowing eyes. In social intercourse he was simple in manner and considerate in spirit, with abundant resources for the entertainment and instruction of those that sought him. As an orator he was easy, agreeable, and yet powerful, plausible and candid in ordinary argument, and yet rising often into true eloquence. His beautiful home in Deerfield, about three miles from Utica, was an old-fashioned farm-house on a slope flanked with woods, and facing the gently rolling hills and valleys of Oneida, which could be seen lying for miles in shadow or in shine.

SMITH, ERMINNIE ADELLE, an American scientist, born in Marcellus, N. Y., April 26, 1836; died in Jersey City, N. J., June 9, 1886. Her maiden name was Platt. She was educated at Mrs. Willard's seminary in Troy, N. Y., and in 1855 married Simeon H. Smith, of Jersey City, N. J., which place was thenceforth her home. From childhood she devoted herself to the



ERMINNIE ADELLE SMITH.

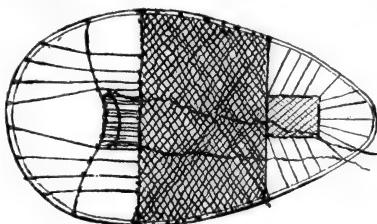
study of geology, both theoretically and practically, and as a result of her work had made one of the largest private collections in the country. She spent four years in Europe with her sons, studying science and language, during which period she was graduated at the School of Mines, Freiberg, Saxony, and after her return gave frequent courses of lectures in parlors, and for charitable objects, on scientific and other subjects. She also organized and became President of the *Aesthetic Society* of Jersey City, whose monthly receptions, from

1879 to 1886, with their literary and musical entertainments, were widely known and largely attended. Their great success was due entirely to her skill and energy. In 1878 she undertook ethnological work under the auspices of the Smithsonian Institution, and obtained and classified over 15,000 words of the Iroquois dialects. To facilitate her work in this direction, she spent two summers with the remnant of the Tuscaroras in Canada, and was adopted into the tribe, receiving the name of Kă-tei-tei-stă-kwast, which means "Beautiful Flower." She published numerous papers on scientific subjects, and was a member of Sora, of the Meridian, and of the Historical Society of New York, of the London Scientific Society, and the only lady Fellow of the New York Academy of Sciences. She was a corresponding member of the Numismatic and Antiquarian Society of Philadelphia, and of the American Association for the Advancement of Science. At the meeting of the Association in 1885 she was secretary of the section of geology and geography. Her collection is in the possession of her sons, three of whom survive her. Her Iroquois-English dictionary was in course of printing at the time of her death. A volume of essays and poems by the *Aesthetic* Society, written and delivered under her direction, was issued in 1883.

SNOW-SHOES, a contrivance consisting of light wooden frame, filled in with a netting that, being attached to the feet, enables a person to travel over the surface of deep snows. A light stick of seasoned ash or hickory, about half an inch in diameter, is selected, and bent in the form of a long ellipse that contracts sharply toward the point where the ends are brought together and fastened with thongs. The dimensions of this frame usually are from

is fastened by winding the sinews around the outer frame, and by heavy cords or lacings that run to the cross-pieces, but in the center an opening three or four inches square is left. The remaining sections are filled in with a finer lacing and mesh, and the netting is fastened to the frame by thongs that pass through holes.

The snow-shoe is fastened to the moccasined foot by a thong, the ends of which are passed through two strengthened meshes just back on either side of the opening left behind the front cross-piece in the middle section. The thong, being brought back through the adjoining meshes, forms a loose loop, into which the front part of the foot is placed, and by draw-



ing in the ends of the thong the slack loop is pulled tightly down over the lower part of the instep. The ends of the thong are then passed under the loop on either side of the foot, and, being half-hitched, are drawn back and tied about the ankle. Some of the snow-shoes now made have a sort of harness, which buckles about the foot; but these are cumbersome, and are little used.

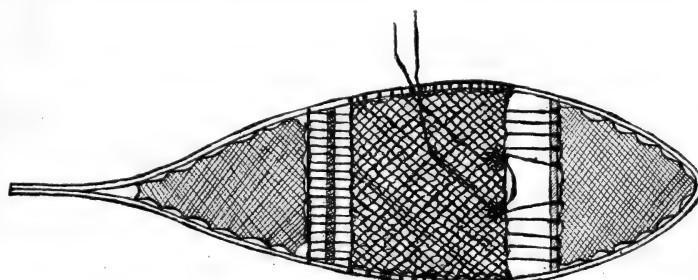
The Chippewa shoe is square-toed and flat; the Innuit, oval and flat; the Ingalk, large, sharply curved up in front; that of the Sioux, pointed and slightly turned up at the toe; shoes

from Oregon and Utah are oval at each end, or nearly round, with lacings running across irregularly. The Hudson Bay snow-shoe is small and of a regulation size, in order to beat a uniform trail, in which the sleds or toboggans may run more easily. These shoes curve up in the

front, and are furnished with a knob to break a thick crust. In all these varying types of shoes the manner in which the web or netting is inserted differs; but the opening through which the toe plays, and the manner of fastening, is in common.

The ordinary form is the one presenting an oval slightly curved-up front and narrow-extending tail, best known as the Iroquois. This is the type most in use throughout Eastern Canada and the United States. These shoes

two to four feet in length and ten to eighteen inches in greatest width. The frame is then strengthened by mortising in a narrow, flat strip of wood five or six inches from the front; and double that distance from the narrow part, or what is termed the "tail" of the shoe, a similar piece is inserted. The middle section of the frame is filled, except a space about three inches wide next to the cross-pieces, by weaving across with half-inch meshes strong deer-sinews, catgut, or rawhide. This netting



are made in "rights" and "lefts"—that is, on the inside the frame sweeps in more sharply from the widest part toward the tail. The walker is thus permitted to preserve a more natural gait without the shoes interfering. The dimensions of these shoes vary from two to five feet in length, and from ten to eighteen inches in width. Snow-shoes for women are smaller



and lighter. Lumbermen chiefly use a circular shoe, as best adapted for traveling in heavy timber and underbrush. The racing shoe must have a width of not less than ten inches, but its length is without limitation. In weight the snow-shoe varies from an eight-ounce racing-shoe up to several pounds. Snow-shoes are made by Indians, as their peculiar construction defies the successful use of machinery.

In snow shoeling an experienced walker will, with the peculiar loping gait, cover fully as great a distance as a pedestrian on a road, and with equal ease and speed. The longest tramp on record is that of a party of surveyors attached to the Canadian Pacific Railroad. They left British Columbia in December, 1875, and crossed the Rocky Mountains on snow-shoes to Edmonton, over 900 miles.

The early explorers among the Esquimaux, Siberians, and Laplanders mention the snow-shoe. La Salle and Champlain employed it in explorations of Canada and the Northwest. Le Hontan, in his "Nouveaux Voyages dans l'Amérique Septentrionale" (1702), describes at length *des raquette*, or snow-shoes. La

Pérouse writes of the shoes in the huts of the natives on the coast of Tartary, and the museum attached to the College of St. Ignatius at Rome had a pair of shoes from Northern Asia.

Soon after the English conquest of Canada, Gen. Riedesel introduced the snow-shoe as part of the military equipment of the English forces there. Sir John Johnson's orderly-book has this entry under Jan. 4, 1777, at Lachine: "They [his soldiers] will practice marching on snow-shoes." The Earl of Bellamont writes to the Lords of Trade of the military equipment at Montreal: "There are arms for 2,500 men, . . . and 1,550 pair of snow-shoes or raquets, a pair whereof I now send your lordships, . . . that you may see the manner of them." At present, snow-shoes are a part of the regular outfit of the Canadian volunteers, and regular drills upon snow-shoes are had in the winter tactics.

Snow-shoeing as a sport is confined to this continent (except as hereafter mentioned), and may be said to date back to the organization of the Montreal Snow-Shoe Club in 1840. Since then, snow-shoeing as a pastime has steadily developed, and at present there are a hundred or more snow-shoe clubs in Canada, with a membership of several thousand. The Saratoga Snow-Shoe Club, organized in 1881, was the first American club. Many clubs have since been formed, notably in the Northwest about St. Paul.

From the inception of snow-shoeing as an amusement, racing has been a prominent incident. In Canada the annual races are as much an event as the summer field meeting of athletic associations in the States. The following table of amateur records will show the speed attained at various distances:

100 yards.....	1 $\frac{1}{4}$ seconds, skeleton shoes.
100 yards.....	1 $\frac{1}{2}$ s., ordinary shoes.
150 yards.....	1 $\frac{1}{2}$ s., ordinary shoes.
220 yards.....	2 $\frac{1}{2}$ s., regulation shoes.
440 yards.....	1 m., 5 s., skeleton shoes.
440 yards.....	1 m., 17 $\frac{1}{2}$ s., regulation shoes.
1,000 yards.....	3 m., 18 s., regulation shoes.
1 mile.....	5 m., 42 s., regulation shoes.
1 $\frac{1}{2}$ miles.....	8 m., 49 s., skeleton shoes.
2 miles.....	11 m., 52 s., skeleton shoes.
3 miles.....	19 m., 11 s., regulation shoes.
5 miles.....	32 m., 18 s., regulation shoes.

CROSS-COUNTRY.

1 $\frac{1}{2}$ mile.....	12 m., regulation shoes.
3 miles.....	25 m., ordinary shoes.
5 $\frac{1}{2}$ miles.....	38 m., 41 $\frac{1}{2}$ s., ordinary shoes.

OVER HURDLES.

100 yards, 8 hurdles, 3 $\frac{1}{2}$ feet high.....	14 $\frac{1}{2}$ s.
100 yards, 4 hurdles, 3 $\frac{1}{2}$ feet high.....	13 $\frac{1}{2}$ s.
440 yards, 10 hurdles, 2 $\frac{1}{2}$ feet high.....	1 m., 18 s.
440 yards, 6 hurdles, 3 feet high.....	1 m., 26 $\frac{1}{2}$ s.

The customary programme followed by the snow-shoe clubs is to have a weekly afternoon and evening tramp. The costumes worn in snow-shoeing are comfortable and pictur-



esque. The coat is made of a heavy material in the nature of blanketing, manufactured expressly for this purpose. To the coat, which reaches about to the knee, is attached a long

hood or capote, to draw over the head in severe weather. Knickerbockers of the same material as the coat are worn; a knit sash to draw the coat closely into the body; a long, knit tuque, heavy stockings, and deer-skin or oil-tanned moccasins, complete the attire. The general colors of these suits are white, blue, or red. The ladies' suit consists of a short, full skirt, which falls midway between the knee and ankle, a close-fitting waist or jersey, with either a jacket or a long ulster, with a sash and hood for an outer garment. The tuque and moccasin are also worn.

The Scandinavian *skee* or snow-skate is practically a snow-shoe. It consists of a light, straight-grained piece of wood, six to twelve feet in length by three to four inches in width, turned well up in front. The general length is six to eight feet, and the wood used is one capable of taking a polish, as fir, pine, cedar, or spruce. Where the foot rests, which is never forward of the middle of the shoe, the wood is an inch and a half thick, but from there it tapers down to a thickness of about half an inch at the ends. On the under side of the shoe a narrow groove is cut, which tends to prevent slipping sidewise. The best skees are curved up in the middle, so that when placed on a flat surface only the ends touch. This tends to distribute the weight of the walker more evenly.

These shoes are chiefly used in Norway and Sweden, though within the past thirty years they have been introduced in the western part of the United States, especially in the Rocky mountains, where they have been found to be of great utility. Owing to the peculiar gait acquired in their use, traveling on skees is much more rapid than on the other varieties of snow-shoes. It is best described as snow-skating. The distance covered by an expert *skee-runner* is from fifty to sixty miles a day, though some records exist of over 100 miles.

SOUTH CAROLINA. **State Government.**—The following were the State officers during the year: Governor, Hugh S. Thompson, Democrat; Lieutenant-Governor, John C. Sheppard; Secretary of State, James N. Lipscomb; Attorney-General, Charles R. Miles; Treasurer, John P. Richardson; Comptroller-General, William E. Stoney; Superintendent of Education, Asbury Coward; Adjutant and Inspector-General, A. M. Manigault; Commissioner of Agriculture, A. P. Butler; Railroad Commissioners, W. L. Bonham, E. P. Jewey, and D. P. Duncan. Supreme Court: Chief-Justice, W. D. Simpson; Associate Justices, Henry McIver and Samuel McGowan. Governor Thompson having been appointed by the President an Assistant Secretary of the Treasury, on the 10th of July resigned and was succeeded by Lieutenant-Governor Sheppard. In December the officials chosen at the November election assumed their offices.

Legislative Session.—The Legislature met on the 23d of November and adjourned at the end

of December. The acts passed number one hundred and forty-one. There are twenty-four public or general acts, five appropriation acts, and thirty-six acts relating to county affairs. Besides, there are sixteen acts relating to railroads, twelve to municipal charters, twenty-nine to miscellaneous charters, seven to stock-law exemptions, two constitutional amendments, four relating to the sale of liquor, and six of a miscellaneous character.

The two constitutional amendments, which had been approved by the people in November, related to the bonded debt and the census. No adequate measure of assistance for the earthquake-sufferers was passed.

Financial.—According to the report of the State Treasurer for the year ending Oct. 31, 1886, the receipts during the year aggregate \$819,276.11. The expenditures during the year were \$855,973.82, leaving a cash balance, Oct. 31, 1886, of \$96,808.70.

During the year there were funded under the acts of December, 1873, and subsequent acts, bonds and interest aggregating \$21,788.91, which were exchanged for consols maturing July 1, 1893, amounting to \$10,304.01. The condition of the public debt on Oct. 31, 1886, was as follows:

Stocks	\$2,062,412.97
Bonds.....	4,077,000.00
Deficiency bonds.....	440,900.00

Total..... \$6,580,312.97

The amount assessed for State purposes upon a valuation of \$151,495,000 was \$833,630, to which was added \$17,558 of penalties, making in all \$851,188. Errors and *nulla bona* amounted to \$22,792, leaving \$828,396; of this amount \$805,768.71 was paid into the State Treasury. The aggregate valuation of property for 1886 is \$2,625,934 more than that originally returned. The average value of land for the whole State is \$2.72 an acre, against \$2.84 an acre last year. The lowest valuation is in Horry, 93 cents an acre; and the highest, except in Charleston County, is Anderson, at \$4.97 an acre.

Education.—The number of school districts in the State for the scholastic year 1885-'86 was 557. The number of pupils enrolled for 1884-'85 is shown by the following table:

SEX.	White.	Colored.	Total.
Male.....	41,819	48,418	90,237
Female.....	86,639	51,147	87,786
Total.....	78,458	99,565	178,023

And this is the corresponding table for the scholastic year of 1885-'86:

SEX.	White.	Colored.	Total.
Male.....	44,681	48,093	92,724
Female.....	89,793	51,450	91,242
Total.....	84,423	99,543	183,966

Number of first grade teachers, 1,881; second grade, 795; third grade, 1,159. Teachers hold-

ing licenses are included among those reported as holding third-grade certificates.

The average length of session for the schools during the year 1885-'86 was 3½ months, the same as the year before.

South Carolina College in 1885-'86 had 213 students. The year 1886-'87 began with 183.

Claflin College, at Orangeburg, was founded in 1869, and is intended for the higher education of the colored youth of both sexes. The faculty is composed of ten teachers, and the annual attendance exceeds 400. Special attention is given to practical industries; schools of farming, carpentry, printing, and domestic economy are in successful operation.

In the Military Academy, the scholastic year 1886-'87 opened with 62 beneficiary cadets and 50 pay cadets.

The Institution for the Education of the Deaf and Dumb and the Blind has an enrollment of 94 pupils, an increase of 9 over the year preceding. Notwithstanding this increase, there remains of the appropriation for the maintenance of the institution an unexpended balance of \$1,257.85.

In the Lunatic Asylum at the beginning of the year there were 605 patients, of whom 363 were white, 242 colored, and 12 were absent on probation, 237 were admitted during the year, making the whole number under treatment 854. In the fiscal year 1875-'76 the per capita cost was \$203.83; the per capita cost for the last fiscal year was \$140.25.

Penitentiary.—At the beginning of the last fiscal year there were 945 prisoners confined in the Penitentiary, of whom 865 were colored and 80 white. During the year 553 prisoners were received, of whom 516 were colored and 37 white. The discharges during the year, for various causes, were 513, leaving in confinement at the end of the fiscal year 878 colored males and 38 colored females, and 64 white males and 5 white females, aggregating 985 prisoners, an increase of 40 as compared with the corresponding period of last year. Of these there are—

On phosphate-works.....	102
In shoe and hosiery factories.....	201
On the different farms.....	227
Within the walls and on the canal.....	455

The aggregate expenses of the institution for the year appear to have been \$66,785.37. The receipts were \$60,456.69, of which \$40,100.04 was received from convict-hire. The institution has, however, \$11,916.66 to its credit, due by lessees of convicts. There were 39 deaths during the year.

State-House.—During the session of 1884 the sum of \$75,000 was appropriated for the purpose of defraying the expenses of continuing the construction of the State-House. The same sum was appropriated in 1885. The amount paid out during the last fiscal year was \$72,658.44; the amount paid the previous year was \$8,158.24; the amount to be paid on contracts already made, \$51,551.06, aggregating

\$132,867.74. The sum necessary to complete the main building is estimated at \$61,600.

Agriculture.—The following table shows the yield of field-crops in 1885-'86:

CROP.	YIELD.	
	1885.	1886.
Cotton, bales.....	617,162	580,102
Corn, bushels.....	16,579,968	13,925,163
Rice, pounds.....	82,491,850	69,625,922
Wheat, bushels.....	1,207,525	1,161,097
Oats, bushels.....	3,808,805	3,700,757
Sugar-cane, tons.....	426,594	359,607
Sorghum, gallons.....	670,450	656,355
Tobacco, pounds.....	227,750	465,309
Peas, bushels.....	905,400	781,886
Potatoes, sweet, bushels.....	8,738,805	8,990,339
Potatoes, Irish, bushels.....	505,755	471,582

The total area in cultivation in the principal crops was reduced 75,538 acres below last year. This reduction can only be accounted for by the destruction of crops on bottomlands, and the failures to replant on such lands. The prices of all agricultural products, with the exception of oats, rye, and barley, show a decline as compared with 1885.

Phosphates.—The State receives a royalty from phosphate-rock removed from navigable streams. During the past year there have been removed from these streams 191,174 tons of rock against 171,671 tons in 1885, an increase of 19,503 tons. The royalty has amounted to \$196,089.88, against \$176,754.91 in 1885, an increase of \$19,334.97. It is important to note in this connection that a very small part of the river rock is used by home manufacturers of fertilizers. During the past year the shipments to foreign and domestic ports amounted to 180,068 tons, leaving only 11,106 tons manufactured into fertilizers in the State. The Carolina fertilizer companies manipulate the land phosphate-rock almost exclusively.

Political.—The Democratic State Convention met in Columbia on August 4, and adjourned on the following day, having nominated the following ticket: For Governor, J. P. Richardson; Lieutenant-Governor, W. L. Mauldin; Secretary of State, W. Z. Leitner; Comptroller-General, W. E. Stoney; Attorney-General, Joseph H. Earle; State Treasurer, I. S. Bamberg; Adjutant and Inspector, A. M. Manigault; Superintendent of Education, J. H. Rice. This ticket was elected, there being no opposing candidates. The vote for Governor was only 33,154. Seven Democratic Congressmen were declared elected. The Legislature is Democratic, there being only two Republican Senators and four Republican Representatives. The Senate has two colored members, and in the House there are six colored men, two of whom are Democrats.

Two constitutional amendments were approved. The vote was as follows:

Bond amendment.—Yes, 17,462; no, 5,319.

Census amendment.—Yes, 16,799; no, 5,854.

Farmers' Convention.—A convention of farmers was held in April for the purpose of concerting united action in behalf of the agricultur-

ural interest of the State. A committee was appointed to draft a constitution and by-laws for a permanent organization to be submitted to a subsequent convention. This body met in Columbia on November 9, and adjourned on the 10th. The report of the Committee on Constitution was adopted, and the Farmers' Association of South Carolina organized.

Earthquake.—Charleston and the neighboring region were visited on the evening of August 31 by the severest earthquake in the annals of the city. See EARTHQUAKES.

Growth of the State.—A statement compiled by the Charleston "News and Courier" exhibits the industrial condition of the State for the year as compared with 1880, as follow:

The value of the exports for South Carolina in 1880 was \$21,559,763; in 1886, \$19,734,779, a decrease of \$1,824,984. The value of imports was, in 1880, \$231,435; in 1885, \$524,171, an increase of \$292,736. The total railroad mileage of the State in 1880 was 1,403; in 1886, 1,754, an increase of 351 miles. The total tonnage transported by railroads in 1880 was 1,298,468 tons; in 1886, 2,103,573, an increase of 815,105 tons. The total earnings of the railroads in 1880 was \$4,108,040; in 1886, \$6,429,289, an increase of \$2,321,105. In 1880 there were 2,078 manufacturing establishments in South Carolina, with a capital of \$11,205,894, and the value of their products was \$16,738,008; in 1886 there were 3,242 establishments, with a capital of \$21,327,970, and the value of manufactured products was \$29,957,551. The increase was 1,164 establishments, \$10,122,076 of capital, and \$13,213,543 in new products. In 1880, 80,000 tons of fertilizers were shipped out of the State; in 1886, 196,804 tons, an increase of 116,814 tons. In 1880 the farmers purchased \$7,359,462 worth of supplies on time; in 1886 the amount so purchased was \$5,037,968, a decrease in the value of such purchases of \$2,321,494.

SPAIN, a monarchy in Southern Europe. (For area, population, and form of government, see "Annual Cyclopaedia" for 1885.) The Queen-Regent, Maria Christina, widow of Alfonso XII, and daughter of the Archduke Carl Ferdinand of Austria, was delivered of a male child on May 17, 1886. The King was named Alfonso Leo, taking his second name from the Pope, and will reign as Alfonso XIII. His mother is to remain Regent until he reaches his legal majority at the completion of his sixteenth year.

The Council of Ministers, constituted Oct. 9, 1886, is composed as follows: President, P. Mateo Sagasta; Minister of Foreign Affairs, S. Moret; Minister of Grace and Justice, M. Alonso Martinez; Minister of Marine, Admiral Arias; Minister of Finance, M. Puigcerver, appointed in August, 1886; Minister of War, G. Castillo; Minister of the Interior, — Castillo; Minister of Commerce and Agriculture, Navarro Rodrigo; Minister of the Colonies, M. Balaguer.

Railroads, Posts, and Telegraphs.—The length of railroads completed on Jan. 1, 1886, was 5,740 miles. The number of letters, postal-cards, and circulars carried in the mails in 1883-'84 was 118,394,708 domestic, and 34,343,456 foreign. The telegraph lines in 1884 had a length of 11,155 miles, with 27,150 miles

of wires. The number of dispatches was 3,281,885, of which 2,048,459 were paid internal messages, and 749,845 international. The receipts were 5,881,767 pesetas.

The Army.—The standing army in 1886 numbered 83,808 infantry, 14,364 cavalry, 11,340 artillery, with 392 guns, and 4,279 engineers. The war effective was 734,679 infantry, 21,-452 cavalry, 30,355 artillery, and 7,168 engineers, besides 6,953 troops in the territorial army of the Canaries, 15,302 of the civic guard, and 10,940 in the frontier guard. The troops in the colonies, not included in the above statement, consisted of 25,342 men in Cuba, 3,566 in Porto Rico, and 11,016 in the Philippine Islands. The total peace effective of the Spanish army is 182,379 men, with 16,495 horses, and 416 guns; the war effective, 869,353 men, 23,467 horses, and 484 guns.

The Navy.—The war fleet in 1885 consisted of 5 armor-clad frigates, 8 other frigates, 11 cruisers, 7 corvettes, and 111 other vessels of all kinds. The largest ironclad has a displacement of 7,200 tons and 5½-inch armor. In Cuba and Porto Rico there are 35 gunboats, each armed with a 100-pounder pivot-gun.

Finances.—The budget for the year ending June 30, 1887, estimates the total receipts at 940,530,725 pesetas, or francs, of which 283,724,000 are derived from direct taxes, 131,729,-000 from indirect, 131,340,000 from customs, 273,205,000 from stamps and *régies*, 26,012,725 from reproductive state property, and 94,520,-000 are carried over. The expenditures are calculated at 923,446,869 pesetas.

Dissolution of the Cortes.—The Cortes was called together in December, 1885, for the purpose of swearing in the Regent and giving certain ministers powers to enable them to carry on the business of the Government. Romero Robledo contested the presidency of the Congress with his former ministerial colleague, Canovas del Castillo, who was elected by 222 votes to 112 for Robledo. The latter openly attacked Canovas in the Chamber, and though the position of Sagasta and his party was strengthened through the split in the Conservative party, when the Republicans endeavored by an interpellation, on Jan. 5, 1886, to add to the political turmoil, the Prime Minister determined to dissolve the Cortes, which was at once prorogued. The Queen took the oath before the Cortes on Dec. 30, 1885.

The New Cortes.—The Government, as usual, obtained an overwhelming majority in the new Cortes. The senatorial elections gave 136 seats to the Ministerialists, besides 14 to be filled by nomination, while 26 partisans of Canova were elected, 4 followers of Romero, 2 candidates of the Dynastic Left, 4 Republicans, and 8 Independents. In the House of Deputies the ministry won 310 seats against 121 that went to members of the various opposition parties. The elections took place, without disturbances of any character, on April 26.

The Cortes were opened on May 10. With

reference to the complaints of work and the labor demonstrations that had taken place in Madrid and other places, the ministry declared in the address that they would occupy themselves with the welfare of the working population, and with social, economic, commercial, and colonization questions. They promised to bring in a law for the extension of the electoral franchise, and announced changes in the army and a reorganization of the navy. Cánovas proclaimed his unwavering opposition to the broadening of the franchise and the other reforms guaranteed in the resolution of 1885, while the dynastic Liberals attacked the ministry for attempting to satisfy the nation with delusive hopes and empty promises; and the Republicans denounced the monarchy as a fortress of falsehood, misrule, and corruption.

The regency, under the direction of Sagasta, assumed a conciliatory attitude toward the Republican party, and Castelar strove to restrain the revolutionary tendencies among them. The ministry declared that even Zorilla was included in the truce, and would be welcome to come to Spain and take part in parliamentary life. Sagasta promised the realization of the resolution passed by the Chamber in 1855, called the guarantee law, in favor of extension of the franchise, trial by jury, and other popular demands. He even declared that if the nation pronounced clearly in favor of the republic he would accept the decision. When afterward, in the debate on the address in July, he recalled that declaration, Salmerón, the leader of the Progressive Republicans, shouted: "The country is witness that you have renounced the way of peace! You are then answerable for the events that you have invoked!" He proclaimed for his party the "sacred right of revolution."

Military Revolt in Madrid.—In the night of September 19 a number of Republican officers attempted to begin a revolution in Madrid. Three or four hundred infantry and cavalry soldiers, under the direction of Gen. Villafranca, left their barracks and marched through the streets shouting for the republic. Many civilians joined the insurgents, and killed the colonel, Mirasol, and a lieutenant-colonel who resisted them. Count Mirasol, formerly an adjutant of King Alfonso, was commander of an artillery regiment. The Gavellano regiment of infantry declared for the republic and the revolution in their barracks. Col. Sergaminaga and some other officers forced a part of the mutinous troops into obedience. The others broke down a wall that separated them from the Albuera regiment of cavalry that had risen at the same time. The rebellious troops rushed in disorder through the streets to the Atocha railway-station. Gen. Villafranca accompanied them in uniform on his horse. Gen. Velarde went to the station, in the hope that his presence would recall his troops to their duty. He was stopped by a lieutenant and a band of citizens, and, when he refused to cheer for the

republic, was shot by a civilian. Gen. Pavia, Governor-General of Madrid, ordered out the gendarmerie, who cleared the streets, and at one o'clock, three hours after the first rising, led two regiments of hussars and a battery of artillery, who were joined on the route by another regiment and four other batteries, against the rebels, who were posted at the station. The artillery arsenal, near the railroad, was stormed by the insurgents, and the guns were carried off. They received the advancing troops of Gen. Pavia with musketry and artillery fire. A part of the rebels departed at two o'clock by train for the town of Alcalá, where they expected assistance from the cavalry regiment stationed there. The rest, except sixty men, who gave themselves up, were put to flight. Gen. Villafranca, who was a brigadier without a command, was captured in Roblejas. He and the five other officers who were arrested refused to make any statement or explanation. Insurrections occurred in other parts of the country, and many skirmishes took place. The day after the revolt there were cries for the republic and tumults in Madrid, but the state of siege was proclaimed, disorderly persons were roughly handled, and many citizens were sent to jail. There was a combat in the province of Gerona on the 24th, and the rebels were driven across the border into France. Besides Count Mirasol and Gen. Velarde, six other officers and many soldiers were killed by the rebels. There were supposed to have been from 8,000 to 10,000 troops in and around Madrid who were implicated in the conspiracy. The whole country was placed under military law, and arrests were made for several weeks in great numbers. Gen. Villafranca was condemned to death on October 2. The Cabinet at first refused to entertain the proposition to pardon the offenders who were sentenced to death; but they were finally compelled by the dangerous temper of the people to take a milder course. Villafranca's sentence was commuted to exile on the Island of Fernando Po. Twenty-seven others were sent to the penal colonies in Africa.

Cabinet Changes.—The revolutionary attempt had for its result a Cabinet crisis and a reconstitution of the ministry. The Moderates were victorious in the struggle, because the insurrection had produced a reactionary drift, and united the conservative elements. The Democrats were dissatisfied with the composition of the Cabinet, and declared that the new Cabinet had no title to continuance unless it made the guarantee law a reality. The new Ministers of War and Marine are officers of high professional reputation, who have taken no part in politics. In the Ministry of Public Works and Education a Radical was replaced by a member of the Right Center. The Ministry of the Interior was given to another Moderate Liberal. The Minister of the Colonies, on the other hand, belongs to the Extreme Left of the Government party. At the opening of

the Cortes in November, Sagasta announced a long list of reforms, including civil marriage and the introduction of trial by jury. But he was not prepared to propose universal suffrage.

Commerce.—The total value of the imports in 1884 was 779,643,866 pesetas (1 peseta = 1 franc, or 19 $\frac{3}{4}$ cents); the value of the exports, 619,192,339 pesetas. Of the imports, 191,900,000 pesetas came from France, 163,800,000 pesetas from Great Britain, 88,700,000 pesetas from Germany, 39,000,000 pesetas from Belgium, 25,200,000 pesetas from Sweden and Norway, and 154,100,000 pesetas from America. Of the exports, 254,900,000 pesetas went to France, 168,000,000 pesetas to Great Britain, and 124,500,000 pesetas to American countries. The mercantile fleet in 1884 numbered 1,902 vessels, of which 426 were steamers.

Commercial Treaty with England.—The treaty that, after long negotiations, Minister Moret concluded with Great Britain, created great dissatisfaction in Spain. The manufacturers and laborers of Barcelona and other industrial towns declared that the *modus vivendi* would ruin them through the influx of British manufacturers. Wine-growers asserted that the limit of thirty degrees would shut out their most profitable sorts. The West Indian colonists complained because their coffee, sugar, and cocoons were subjected to Indian competition.

SWEDEN AND NORWAY, two kingdoms in northern Europe, united in the person of the sovereign. The reigning King is Oscar II, born Jan. 21, 1829.

SWEDEN. The ministry is composed of the following members: Prime Minister, O. R. Themptander; Minister of Foreign Affairs, Count A. C. A. L. Ehrensvärd; Chief of the Department of Justice, N. H. Vult de Steyern, Chief of the Marine Department, Baron C. G. von Otter; Chief of the Department of Ecclesiastical Affairs, C. G. Hammarkjöld; Chief of the Department of War, Major-General K. A. Ryding; Chief of the Department of the Interior, J. E. von Krusenstjerna; Chief of the Department of Finance, Baron C. G. A. Tamm; State Councilors without portfolios, J. H. Lövén and J. C. E. Riebert. The Ministry of Finance, previously directed by the Prime Minister, was given into the charge of Baron Tamm in May, 1886.

Area and Population.—The area of Sweden is 170,979 square miles. The population on Dec. 31, 1885, was 4,682,769, comprising 2,273,861 males and 2,408,908 females. The number of marriages in 1884 was 30,200; of births, 142,582; of deaths, 84,914; increment, 57,668. The number of emigrants in 1884 was 23,560. The population of Stockholm, the capital, in 1885, was 215,688.

Finances.—The budget for 1887 states the revenue to be 84,830,000 crowns, equal to \$22,914,100, of which 8,153,000 crowns consist of the balance in the treasury, 19,342,000 of receipts classed as ordinary, 55,535,000 of the extraordinary receipts, or those derived from

customs, excise, stamps, etc., and 1,800,000 of the profits of the postal service. The ordinary expenditures are set down as 64,046,610 crowns. The total expenditures balance the receipts; the public debt on Jan. 1, 1886, contracted exclusively for the construction of railways, amounted to 247,069,595 crowns, of which 214,302,195 crowns were owing abroad.

The Army.—The enlisted troops in 1886 numbered 9,597 men, and the cantoned troops 27,193. The war strength of the army was 190,452, with 258 guns and 5,965 horses.

The Navy.—The navy in 1886 comprised 31 gunboats of different classes, 15 of them armoured, 16 torpedo-boats, and 18 other steamers. The most powerful vessel is the "Svea," a central citadel armor-clad with 12 inches of armor and two 32-ton breech-loading guns, besides two of 8-inch bore.

Commerce.—The total value of the imports in 1884 was 325,817,000 crowns. The exports were valued at 238,612,000 crowns. The imports from the United States amounted to 5,353,000 crowns; the exports to the United States to 1,738,000 crowns.

Railroads, Posts, and Telegraphs.—The length of railroads in the beginning of 1886 was 4,807 miles, of which 1,440 belonged to the state.

The number of letters and postal-cards forwarded in 1884 was 44,670,919. The receipts of the post office were 6,095,198 crowns; the expenses, 5,384,601 crowns.

The length of the state telegraph lines in 1885 was 5,360 miles, with 13,105 miles of wire. There were 607,256 internal and 444,838 foreign messages transmitted during 1885, not including 114,540 in transit. The receipts were 1,325,127, the expenses 1,330,030 crowns.

The Session.—The Swedish Parliament assembled on Jan. 18, 1886, and was closed on May 18. The principal measure discussed was a bill to place protective duties on cereal imports, which was rejected on March 13.

NORWAY. The ministry, constituted June 26, 1884, is composed as follows: Prime Minister and Chief of the Department of Defense, J. Sverdrup; Chief of the Department of Worship and Instruction, E. Blix; Chief of the Department of the Revision of Accounts, J. L. R. Sverdrup; Chief of the Department of Justice and Police, A. A. Sörensson; Chief of the Interior Department, S. A. B. Arctander; Chief of the Department of Finance and Customs, R. M. Haugland; Chief of the Department of Public Works, H. R. Astrup. The section of the Council of State residing at Stockholm consists of Minister of State Ole Richter, and the Councilors Elias Blix and S. A. B. Arctander.

Finances.—The receipts of the treasury for the year ending June 30, 1885, were 44,994,500 crowns, of which 20,137,400 crowns were derived from customs and 5,826,000 from railroads. The expenditures were 41,233,900 crowns. The national debt on June 30, 1885, amounted to 108,638,800 crowns; the assets of the Government to 141,728,200 crowns.

The Army and Navy.—The land troops are divided into the line, the landvaern, and the landstorm. The troops of the line number 750 officers and 18,000 men. The naval forces in July, 1886, were 4 monitors, 2 frigates, 2 corvettes, 29 gunboats, and 6 torpedo-boats.

Commerce.—The total value of the imports in 1885 was 145,605,000 crowns; the value of the exports, 101,938,000 crowns. The imports from the United States were valued at 7,363,000 crowns, the exports to the United States at 431,000 crowns.

Railroads, Posts, and Telegraphs.—The length of railroad in operation in 1886 was 975 miles.

The post-office in 1885 forwarded 14,382,615 internal letters, and 19,701,403 in all.

The state telegraph lines in 1886 had a total length of 975 miles, with 8,525 miles of wire.

Session of the Storthing.—The Storthing met in February. There were 82 members belonging to the Left, while the Right counted 32 votes. During the preceding session a law was passed allowing ex-ministers and councilors of state to be elected to the Storthing without respect to their residence. Helliesen and Holmboe, members of the deposed Selmer ministry, were elected under this act; but the Storthing decided that it did not apply to state councilors who had been removed from office on impeachment.

The democratic ministry was unable to show the promised surplus for 1886-'87, and only succeeded in avoiding a deficit by cutting down the military expenditure.

SWITZERLAND, a federal republic in central Europe. The executive department is the Federal Council, composed in 1886 as follows: President of the Federation, Dr. A. Deucher; Vice-President, N. Droz; Chief of the Political Department, Dr. Deucher; of the Interior, Dr. K. Schenk; of Justice and Police, L. Ruchonnet; of Military Affairs, F. W. Hertenstein; of Finance and Customs, B. Hammer; of Commerce and Agriculture, N. Droz; of Posts and Railroads, Dr. E. Welti. For 1887, Droz was chosen President, and Hertenstein Vice-President. (For area and population, see "Annual Cyclopædia" for 1885.)

Commerce.—The total value of the special imports in 1885 was 755,452,000 francs; of the domestic exports, 659,964,000 francs. The imports of precious metals were 36,667,000 francs; the exports, 36,734,000 francs. The exports of watches to the United States declined in value from 13,238,489 francs in 1882 to 11,146,010 francs in 1883, 7,469,704 francs in 1884, and 6,303,940 francs in 1885. The exports of cheese showed a constant increase up to 1883, but since then have fallen off.

Communications.—The length of railroads laid by the close of 1884 was 1,740 miles. The number of passengers carried in 1884 was 23,488,640. The receipts were 71,645,230, and the expenses 38,534,915 francs.

The number of letters carried in 1885, in-

cluding postal-cards, was 55,349,363 internal, and 30,301,492 foreign.

The telegraph lines in 1885 had a length of 4,345 miles, with 10,480 miles of wire. The number of dispatches was 3,007,556 in 1885.

A commission reported in November on a projected tunnel through the Simplon, recommending a tunnel 16,070 metres long, beginning at Gondo, at an altitude of 820 or 830 metres. The cost of a double-track tunnel was estimated at 62,500,000 francs; that of a single-track tunnel sufficiently large for the traffic, at 53,000,000 francs.

The Army.—The regular army, or Bundesauszug, comprises all able-bodied men from twenty to thirty-two years of age, and the Landwehr those between thirty-two and forty-four years of age. The regular army on Jan. 1, 1886, had an effective strength of 117,179 troops, and the Landwehr of 84,046.

A law was passed for the organization of the Landsturm. This division of the army, consisting of citizens capable of bearing arms who have passed their fortieth year, had previously no legal status, and in the event of war could be treated by the enemy as the French *francs tireurs* were treated in the war of 1870. There are estimated to be 200,000 efficient soldiers of this class in Switzerland. The law provides for enrolling men of over fifty as volunteers.

Finances.—The revenue of the Federal Government in 1885 was 48,392,697 francs, of which 21,191,437 francs were derived from customs. The total expenditure amounted to 46,278,685 francs. The debt of the Federation on Jan. 1, 1886, was 35,713,485 francs.

Before separating, on December 24, the National Assembly, in view of the warlike situation in Europe, voted the means for the immediate purchase of war material, and for placing the army in a state of readiness.

Proposed Tariff Changes.—The Swiss Government entered into a treaty of commerce for five years with Germany on May 23, 1881. Since that date many of the German duties have been so increased that the export trade with Germany in many articles has fallen off, while Switzerland maintains the same low tariff as formerly. In the beginning of June the Federal Council notified the German Government that a revision was desired. Conferences on the subject began in Berlin on November 1. The Federal Council proposed to the Federal Assembly a revision of the general tariff, increasing the duties on about one hundred articles, including linen, woolen, and cotton manufactures, tobacco, beer, flour, meat, butter, shoes, and clothing. Pending the enactment of this measure and its approval by the popular vote, the Federal Council decided to avail itself of a clause of the tariff law of 1851, and convert the existing duties into retaliatory duties, in order to obtain favorable terms in the tariff negotiations with Germany and other countries.

International Copyright.—An international conference for the conclusion of a treaty for the protection of literary property was opened on Sept. 6, 1886, under the presidency of the President of the Confederation. Austria-Hungary took no part in the conference, because

changes in the municipal law would be necessary before the treaty could be made effective. The United States and Russia were not represented in the conference, for similar reasons. The treaty was concluded, and was formally signed on September 9.

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TASMANIA. See page 64.

TELEPHONE, MECHANICAL. The principle of the mechanical telephone was known long before that of the magnetic telephone. In its simplest form, the "lover's telegraph" of the old text-books on physics, it consists of two cylindrical boxes, each closed at one end by a tightened membrane, and connected by a string. Each box acts alternately as transmitter and receiver, the vibrations being carried mechanically from one membrane to the other by means of the string. In later forms of this instrument, designed for permanent use, the membrane has been replaced by a thin sheet-iron diaphragm, and the string by a wire; but there have always been several drawbacks attending its practical use. In the first place, the connecting wire, like the string in the "lover's telegraph," must touch nothing, and therefore could not be carried around corners; and, in the second place, it must be tight, and therefore either a rise or fall in temperature might stop communication, the former by expanding and thus loosening the wire, and the latter by contracting it, and thus creating a strain powerful enough either to break it, or to pull the head from the telephone. Any effort to prevent the latter result, by making the diaphragm thicker and stronger, evidently makes the instrument much less sensitive. Both of these objections have been recently overcome by the devices of George F. Shaver, of Erie, Pa. For carrying the wire around corners, he uses an iron truss made in the shape of a letter W (Fig. 1). The truss is fastened

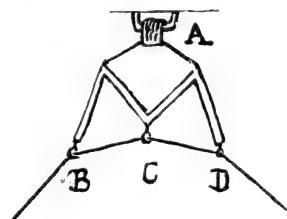


FIG. 1.

to the corner by a stout rubber loop at A, and the line-wire passes through loops at B, C, and D. The whole truss yields sufficiently to carry the wire around in a curve, with no sudden change of direction, and also accommodates itself to any expansion or contraction of the wire, thus taking the strain off the telephone. The latter is made strong by the manner of

fastening the line-wire to it. In the old form of the instrument, the wire passes through the diaphragm, and is secured by a ball or a short transverse bar. In the Shaver telephone the wire is not fastened directly to the diaphragm, but is secured to a ring R (Fig. 2). This is

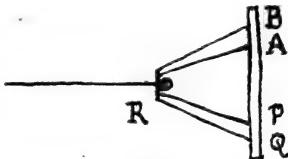


FIG. 2.

connected with the diaphragm by four wires (of which only two are shown in the illustration), each passing through the diaphragm as at A (Fig. 3), back again as at B, and being again fastened to the ring R. Thus the parts of the four wires visible from the front of the diaphragm form the alternate sides A B, C D, E F, and G H, of an octagon. With these are interlaced four other wires, L B C M, etc., on the front of the diaphragm, secured firmly at L, M, etc., on the frame that supports it. This frame thus bears any sudden pull that may be given to the line-wire, while the whole system is so closely connected with the diaphragm as to vibrate readily with it. Very sensitive diaphragms of the finest silk can thus be used, and, since they are connected with the line-wire at many points instead of but one, this arrangement serves also to intensify the sound. In the perfect instrument, a cone, with a base slightly smaller than the octagon A, B, C, D, placed in front of the diaphragm, with its apex toward the speaker, serves to distribute the sound to those parts of the diaphragm connected directly with the line-wire. The signaling can be done with the ordinary magneto-bell, or by knocking sharply on the frame of the telephone.

This form of telephone has been operated over wires two miles in length, and gives excellent results for short private lines. About 400 of them are in use in New York city alone. Mr. Shaver has also invented an "exchange,"

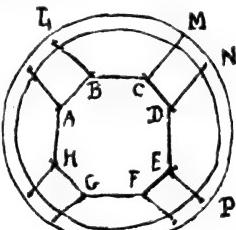


FIG. 3.

with a view to using the "central office" system with his instrument in small cities. It works on the principle of carrying all the lines to a common ring, and then tightening only the two that are to be put in communication, leaving the others loose. It has not yet been put into practical use.

TENNESSEE State Government.—The following were the State officers during the year: Governor, William B. Bate, Democrat; Secretary of State, John Allison; Treasurer and Insurance Commissioner, J. W. Thomas; Comptroller, P. P. Pickard; Attorney-General, B. J. Lea; Superintendent of Public Instruction, T. H. Paine; Commissioner of Agriculture, Statistics, and Mines, A. J. McWhirter; Register of Lands, W. S. Winbourn. Supreme Court: Chief-Judge, James W. Deaderick; Associate Justices, William F. Cooper, Thomas J. Freeman, Peter Turney, and J. B. Cooke.

The receipts for the two years ending Dec. 19, 1886, from all sources, aggregate \$3,228,768.36, including \$645,214.83; cash balance on hand, Dec. 20, 1884. The disbursements during the same time aggregate \$3,291,300.98. The disbursements exceed those of the previous two years by \$1,590,161.87, or at the rate of \$795,080.93 a year. The additional expenses for the past two years are due to the payment of interest on the State debt, amounting to \$1,041,461; the cancellation of Tennessee money amounting to \$586,000, and the large appropriations for hospitals for the insane in East and West Tennessee, and for schools for the deaf and dumb and blind, legislative expenses of the extraordinary session, Capitol repairs, etc.

About five sixths of the bonds liable to be funded under the act of 1883 have been funded, with all back interest thereon. The Funding Board found at this time (July 1, 1883), according to the books in the Comptroller's office, a bonded indebtedness of the State of \$27,786,066.39. Of these bonds, since the last official report made to the Legislature (in 1885), this board has received and converted for the holders and their agents \$14,312,400, under the terms of the act (March 15, 1883), into new funded or "settlement" bonds, and previously, between July 1, 1883 (when the law took effect), and January, 1885 (when the report was made), received and funded in like manner \$8,063,000, making the total thus funded \$22,375,400, payable in thirty years, and bearing interest at the rate of 6, 5, and 3 per cent.

There is still, according to the books in the Comptroller's office, a balance of \$5,728,000, without interest, of bonded indebtedness to be accounted for.

The tabulated statement of the Comptroller's report of the character and valuation of property for a series of years shows that the aggregate assessed valuations for the past six years (excluding railroad and telegraph property) were as follow: In 1881, \$221,929,813; in 1882, \$222,637,873; in 1883, \$226,844,184;

in 1885, \$226,749,308; and in 1886, \$224,909,179. The total taxable property in the State is assessed at the aggregate of \$256,708,856.95, showing an increased value in the past four years of \$7,054,883.83.

Penitentiary.—There were on the prison rolls on Dec. 1, 1886, the names of 1,216 convicts, distributed as follow: Main prison at Nashville, 561; Tracy City, 313; Inman, 196; Coal Creek, 146. The greatest number of prisoners in the Penitentiary at any one time was in 1883, when the total reached 1,427. This number had decreased to 1,323 on Dec. 1, 1884. Those now in confinement are therefore 211 less than in 1883, and 107 less than on Dec. 1, 1884.

Hospitals for the Insane.—The Tennessee Hospital for the Insane shows by report for the biennial term ending Dec. 19, 1886, the whole number of patients to have been 694, which was 64 more than in any former term. In March, 99 patients were transferred to the East Tennessee Hospital for the Insane at Knoxville. This institution had in all 206 patients, with a daily average of 152. The West Tennessee Asylum has been located near Bolivar, Hardeman County.

Public Schools.—The following summaries show the general condition of the schools, and the receipts and expenditures of public funds for school purposes, for the year ending June 30, 1886: Scholastic population between the ages of six and twenty-one years—white male, 240,869; white female, 224,131; total white, 465,000; colored male, 79,861; colored female, 78,589; total colored, 158,450; grand total, 623,450. This shows an increase over the preceding year of 16,889.

Number of teachers employed—white male, 3,863; white female, 1,823; colored male, 1,098; colored female, 528; total, 7,307. Average daily attendance—white, 215,865; colored, 62,411; total, 278,276; increase over last year, 85,873. Estimated value of school-houses, \$1,636,649; estimated value of school apparatus, \$57,331; value of school-houses erected during the year, \$103,789.

Political.—The Republican State Convention met in Nashville on June 16, and nominated for Governor, Alfred A. Taylor, of Washington County. The following are the chief points of the platform adopted:

That we charge upon the Democratic party all the financial and industrial troubles now oppressing our people. That party has shown itself the enemy of the laboring-man and the friend of ignorance and pauperism; that party's rise to power has cast a dark shadow over the homes of the people, in which shadow strikes, riots, and destruction of life and property have impoverished labor, paralyzed capital, and alarmed patriots; and but for the certainty that with the present Administration the Democratic party will be turned out of power for another long term of years, the stagnation of business, the sufferings of the poor, the hoarding of capital, and the dearth of employment for labor would be so greatly increased as to threaten the very foundations of government.

That the Democratic policy of stationing small armies of convicts all over the State to make war on free labor is as great a crime against our skilled laboring-

men as the stationing of small armies of foreign soldiers all over the country would be against the independence of our nation.

That, whereas the protection of one's own household is not only an impulse of human nature but a rule of the Christian religion; and, whereas those who are forced to compete with ignorant paupers may in time become paupers themselves, therefore we declare it to be a high moral and political duty of our Government to protect the educated laboring-men of free America from all manner of hurtful competition with the half-paid, half-fed, half-clothed, and half-educated laborers of despotic Europe; and that in levying tariff duties on European goods brought here for sale, Congress should so apportion these imposts as to give the greatest possible protection to the American laboring-man.

That the people have the undoubted right to alter, amend, or abolish their Constitution and form of government, none will dispute: Therefore, be it

Resolved, That the Republican party of the State of Tennessee recognize the right of the people to have the prohibition amendment voted upon at the ballot-box.

The Democratic State Convention met in Nashville, on August 11, and nominated for Governor, Robert L. Taylor, brother of the Republican nominee. The following are the principal features of the platform:

The Democracy of Tennessee, by its representatives in convention assembled, congratulates the country at large on the restoration of the Democratic party to power in the administration of the General Government. It indorses the Administration of President Cleveland, and upholds him in his efforts to purify the Government from corruption, to restore economy, to revive respect for the Constitution, to reduce taxation, to reform the existing tariff, to allay sectional animosities, to guard the Treasury against unwarranted appropriations of the public money, and to restore the Government to the simple and honest methods of administration known and practiced by its founders.

It indorses the administration of Gov. Bate as honest, intelligent, and patriotic, and it particularly approves the settlement of the State debt.

We oppose the farming out of convicts so as to bring them in competition with the honest labor of our State, and favor the enactment of such laws as will terminate, as early as practicable, such competition.

Recognizing the sovereignty of the people, in response to their demand made through their representatives in the last General Assembly, we favor submitting to them, for their adoption or rejection, the proposed constitutional amendment prohibiting the manufacture and sale of intoxicating liquors as a beverage in Tennessee.

On November 2 the Democratic candidate was elected, the vote being—Democratic, 126,151; Republican, 109,837. Republicans were elected to Congress from the First and Second Districts, and Democrats from the other eight. The Legislature of 1887 consists of 21 Democrats and 12 Republicans in the Senate, and 63 Democrats and 36 Republicans in the House.

On August 5 Peter Turney, W. C. Caldwell, D. L. Snodgrass, H. H. Lurton, and W. C. Folkes were elected Supreme Court Judges.

TEXAS. State Government.—The following were the State officers during the year: Governor, John Ireland, Democrat; Lieutenant-Governor, Barnett Gibbs; Secretary of State, J. W. Baines; Treasurer, Frank R. Lubbock; Comptroller, W. J. Swain; Attorney-General,

John D. Templeton; Commissioner of the General Land-Office, W. C. Walsh; Superintendent of Public Instruction, B. M. Baker; Commissioner of Insurance, Statistics, and History, H. P. Bee; State Engineer, James H. Britton. Supreme Court: Chief-Justice, Asa H. Willie; Associate Justices, John W. Stayton and S. Robertson.

Finances.—The rate of taxation at the beginning of the fiscal year, Sept. 1, 1884, was 17½ cents on \$100. The State received during the year ending Aug. 31, 1885, the sum of \$2,064,222.89, and expended during the same time \$1,979,381.25, leaving in the Treasury, Aug. 31, 1885, a balance of revenue, \$84,841.64.

The next fiscal year began with the rate of taxation raised to 25 cents on the \$100. For the year beginning Sept. 1, 1885, and ending Aug. 31, 1886, total receipts from all sources, including balance on hand at the beginning of the year, were \$2,198,873.04; expenditures during the same time, \$1,635,410.14; balance on hand Aug. 31, 1886, \$563,462.90.

The total assessed value of property in the State for 1885 was \$621,011,989, and for 1886 \$630,591,029. The increase in the assessed values of 1885 over the assessed values for 1884 is \$17,951,072, and the increase of 1886 over 1885 is \$9,579,040. The increase in 1886 is mainly from real estate, while there has been a marked shrinkage in the value of personal property, especially in cattle and sheep. The outstanding bonds of the State, Aug. 31, 1886, aggregated \$4,237,730. The balances in the treasury, Jan. 1, 1887, were \$734,717.78 in cash and \$6,897,861.50 in bonds.

Education.—The total scholastic population for the year ending Aug. 31, 1878, was 198,489, with 152 counties reporting; amount of school fund apportioned, \$857,968.70. For the year ending Aug. 31, 1886, the scholastic population was 386,137; counties reporting, 191; amount of fund apportioned, \$2,007,912.40. For the year ending Aug. 31, 1887, the respective figures are 412,380, 188, and \$1,958,805. These figures are for counties. Those for cities and towns are:

YEARS.	Scholastic population.	Fund apportioned.	Cities and towns reporting.
1878-'79.....	6,088	\$18,146 77	11
1885-'86.....	66,541	346,018 20	82
1886-'87.....	77,415	367,721 25	93

The scholastic population of the counties in 1886-'87 is divided as follows: White males, 160,168; white females, 148,178; colored males, 53,257; colored females, 50,777. In the cities the scholastic population of that year stands distributed as follows: White males, 28,139; white females, 28,468; colored males, 9,962; colored females, 10,846. Some of the other county statistics are as follow:

Teachers employed	7,941
School-houses built during the year.....	321
School-houses belonging to the State.....	2,284
School-houses in good condition.....	1,642
School-houses in indifferent condition.....	433

TEXAS.

Average salary paid white male teachers per month.....	\$56 66
Average salary paid white female teachers per month.....	\$33 75
Average salary paid colored male teachers per month.....	\$41 73
Average salary paid colored female teachers per month.....	\$42 86
Total paid teachers.....	\$1,781 97 62

The statistics for cities and towns for the year ending Aug. 31, 1886, are given below:

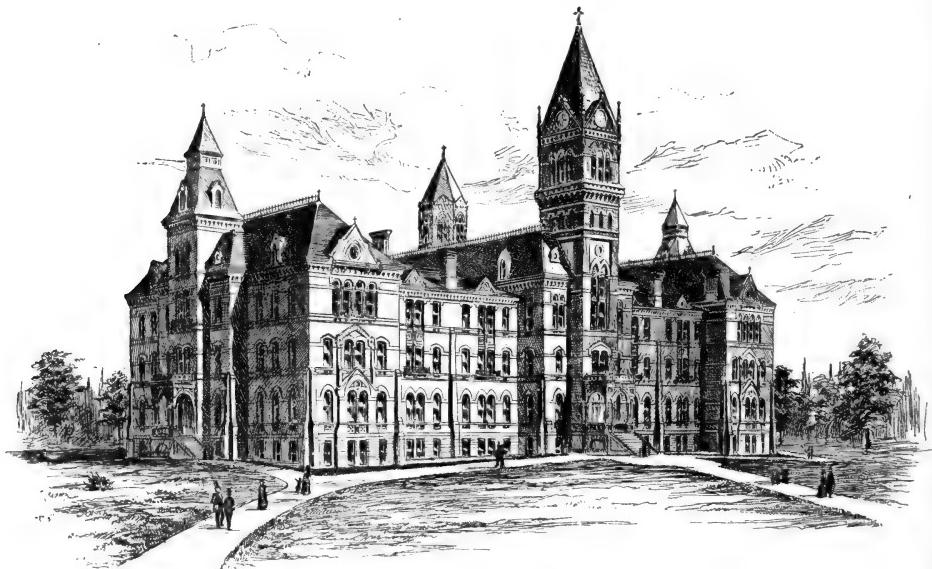
White schools maintained.....	223
Colored schools maintained.....	92
Total.....	315
Average school term in months.....	8 33
Teachers employed.....	773
School-houses built during the year.....	30
School-houses belonging to the State.....	110
Average salary paid white male teachers per month.....	\$90 55
Average salary paid white female teachers per month.....	\$48 08
Average salary paid colored male teachers per month.....	\$50 53
Average salary paid colored female teachers per month.....	\$37 63
Total paid teachers.....	\$496,505 71

The Sam Houston Normal Institute is at Huntsville. In 1885-'86 it had 215 pupils. This institution is for whites. The Prairie View Normal School is for colored pupils.

State University.—This institution is at Austin. In 1885-'86 it had 199 students, of whom 161 were male and 38 female; 139 in the academic and 60 in the law department. In 1886-'87 there were 15 instructors and 220 students, as follow:

Post-graduates.....	2	Freshmen.....	62
Seniors.....	5	Irregulars and specials....	59
Juniors.....	10	Law seniors.....	23
Sophomores.....	16	Law juniors.....	48

Public Institutions.—The Institution for the Blind, at Austin, was established by an act of 1856. In 1885-'86 it had 112 pupils. In the Deaf and Dumb Asylum, at the same place, 148 pupils were enrolled during that year. The State Lunatic Asylum is also at Austin. The North Texas Lunatic Asylum, at Terrell, was opened in July, 1885. The number of patients on Oct. 31, 1885, was 112; admitted during the year, 330; remaining Oct. 31, 1886, 267. It is estimated that there are 2,500 insane people in the State, and accommodations for only 1,000. Of the 1,500 remaining many need asylum residence and support. The penitentiaries are at Huntsville and Rusk. From Nov.



TEXAS STATE UNIVERSITY.

The Agricultural and Mechanical College is at College Station, Brazos County. The library contains about 2,700 volumes, a large number of which have been chosen with reference to the special character of the college. There are 11 instructors.

During the session of 1886-'87, 171 students matriculated. The previous year there were 170. The graduating class numbers 10. Thirtynine-two students entered the agricultural course, 99 the mechanical; the remainder are in the preparatory class.

1, 1884, to Oct. 31, 1886, there were received, under new commitments, 2,191 convicts—a much larger number than ever before received in the same length of time.

The deaths for the last two years were 221, as against 206 for the two years previous—an increase in numbers, but a small decrease in percentage. There was a decrease of deaths at the prisons proper, but there was also a corresponding increase of deaths in the outside forces. The following table presents some additional particulars:

RACE.	
	Values.
White.....	1,122
Negro.....	1,470
Mexican.....	264
Indian.....	3
SEX.	
Males.....	2,814
Females.....	45
NATIVITY.	
Natives of United States.....	2,519
Foreigners.....	30

	Values.
Cotton, 1,369,208 bales.....	\$64,768,820
Wool, 23,338,219 pounds.....	4,656,648
Hides.....	1,842,820
Cattle.....	6,727,415
Horses and mules.....	2,228,918
Lumber and shingles.....	4,326,411
Grain and hay.....	7,416,321
Cotton-seed, cotton-seed cake, and oil.....	8,624,722
Miscellaneous products, including sugar and molasses.....	5,421,618
Total.....	\$91,087,638

Drought.—A meeting of county judges was held in Albany, Shackelford County, December 29. It was shown that in every one of the ten counties represented there has been a partial and in many parts an absolute and complete failure of all crops, and in consequence of such failure of crops of all kinds there is great want among the people, and that there is an existing imperative need of and demand for relief in the way of food and clothing for about 30,000 people for five or six months, or until crops can be raised; and there is a further necessity for donations of seed for planting and other relief for a much larger number who are not yet in absolute need of immediate supplies of food, but who must have aid to enable them to remain at their homes and make a crop next year. It was the opinion of the meeting that the want could only be relieved by aid promptly extended by the State and national Governments and the charitable public, and that anything less than \$500,000 would be inadequate. The counties affected lie in the northwestern part of the State.

Political.—The Democratic State Convention met in Galveston on August 10, and was in session four days. It nominated Lawrence S. Ross for Governor, T. B. Wheeler for Lieutenant-Governor, James S. Hogg for Attorney-General, R. E. Gaines for Justice of the Supreme Court, John D. McCall for Comptroller, R. M. Hall for Commissioner of the Land-Office, Frank R. Lubbock for State Treasurer, and Oscar H. Cooper for Superintendent of Public Instruction.

Later in the same month the Republican State Convention made the following nominations: For Governor, A. M. Cochran, of Dallas; Lieutenant-Governor, L. McDaniel; Comptroller, J. M. Brown; Land Commissioner, A. Zadek; Treasurer, Frank Cleaves; Attorney-General, C. W. Johnson; Superintendent of Public Instruction, H. Cline; Supreme Judge, W. H. Burkhardt.

The Prohibition State Convention, held at Dallas, adjourned on September 8, after nominating a ticket headed by E. L. Dahoney, of Paris, as the candidate for Governor, and S. G. Mullens for Lieutenant-Governor. It provided for a permanent organization of the party.

The Farmers' Grand State Alliance met at Cleburne, and adjourned on August 7.

On November 2 the Democratic ticket was elected. The following was the total vote for Governor and Lieutenant-Governor:

Governor—Ross, 228,776; Cochran, 65,236; Dahoney, 19,186; scattering, 102.

Lieutenant-Governor—Wheeler, 231,950; McDaniel, 66,562; Mullens, 15,339; scattering, 136.

Eleven Democratic Congressmen were chosen. The Legislature of 1887 is unanimously Democratic in the Senate, and has only six non-Democratic members in the House.

New Capitol.—The Capitol Building Commissioners report as follows:

Every portion of the building has been done strictly in accordance with the plans and specifications as amended to date, and is first class in every particular. At the date of the closing of this report, Nov. 1, 1886, the interior and dome walls of limestone and the granite superstructure have been completed above the second story, and the iron-work of both stories placed in position; the boiler-house of the building has been finished, and the sewerage-work completed, and all the work is going rapidly forward in a satisfactory and workmanlike manner. If the same rate of progress in the construction of the building is maintained during the next two years as has been made since last January, when the work of constructing a granite Capitol was begun—and we see no reason why it should not—it is confidently believed that our new Capitol building, with all its appurtenances, will be completed and perfected in all its parts in every particular according to contract in 1889. The contractor, however, has until Jan. 1, 1890, in which to complete the building, and the work has not been, and neither will it in any respect be, pushed faster than safe, solid, durable, and first-class workmanship and construction will admit.

Work was begun under the original contract on Feb. 1, 1882. The corner-stone was laid March 2, 1885. Granite was substituted for limestone for the exterior walls by a supplemental contract of July 25, 1885.

TILDEN, SAMUEL JONES, an American statesman, born in New Lebanon, N. Y., March 15, 1814; died at his country residence, Greystone, on the Hudson, Aug. 4, 1886. He traced his descent to a family of good standing in Kent, England; and three of his ancestors served as Mayor of Tenterden in that county. Joseph Tilden was one of the signors of the "Mayflower"; and Nathaniel Tilden, the first of the name to emigrate, sailed for America in the ship "Ann" in 1634, and was one of the commissioners to locate the town of Scituate, Mass. The Tildens in the second generation settled in Lebanon, Conn., and from that place John Tilden, grandfather of Samuel J., moved to Canaan (afterward New Lebanon), Columbia County, N. Y., in 1790. There Elam Tilden, father of the subject of this sketch, married the daughter of Samuel Jones, who

had been Lieutenant-Governor of Connecticut under the crown. The son grew up with a strong interest in politics, and an intimate knowledge of party affairs, through the father's acquaintance with the Democratic leaders composing the famous Albany Regency. Mr. Tilden entered Yale College in the autumn of 1832, but he was, as he afterward said of himself, "a sickly youth and meditative," and after a time his health broke down, and he returned home. In 1834 he entered the University of New York, where he completed his academic education. The papers preserved in the authorized collection of his writings show that he was active in politics while still a school-boy. In the Kinderhook "Sentinel," early in 1833, he published an article on "Nullification and the Opposition," sustaining President Jackson's course in his celebrated proclamation of Dec. 11, 1832, to the people of South Carolina; in the "Columbia Sentinel" of April 11, 1833, he published an article on



SAMUEL JONES TILDEN.

the compromise tariff act of Henry Clay, under cover of which the nullifiers retreated from their untenable position. These papers were widely copied, and carried great weight, from the fact that Van Buren lived at Kinderhook, and they seemed to bear the stamp of his approval. In the "Columbia Sentinel" of Sept. 12, 1833, Mr. Tilden published a strong defense of Van Buren; and Washington Irving, then a guest at that statesman's house, was so impressed by it that he asked to have the author introduced to him. In the New York "Standard and Statesman" of Feb. 14, 1834, Mr. Tilden argued in justification of President Jackson's suppression of the United States Bank. In the New York "Times" of March 23 and 25 and April 4, 1837, he engaged in a controversy with William Leggett, editor of "The Plaindealer," who had attacked Van Buren for the declaration in his inaugural address of March 4, 1837, that he would veto a

bill abolishing slavery in the District of Columbia, if passed by Congress. In the Albany "Argus" of September 28 and October 20 of the same year, he defended the financial policy advocated in Van Buren's first message, addressed to the extra session of Congress called in 1837. The President opposed a National bank and any renewal of connection between the State banks and the Federal treasury; and Mr. Tilden argued for a divorce of business and politics as "indispensable to the safety of the one and the purity of the other." The measure introduced by Silas Wright to carry out Van Buren's recommendations, known as the "Independent Treasury Bill," was defeated in the House of Representatives at the extra session of Congress and at the regular session, but passed the succeeding Congress. It was the great issue of that day; and Mr. Tilden, though still a student, took a prominent part in the agitation in favor of the measure. He prepared the resolutions in favor of free banking adopted at a meeting of the mechanics and workingmen of New York, held Feb. 6, 1838; and he prepared the address to the farmers, mechanics, and workingmen of New York on the divorce of bank and state, adopted at a meeting held in Tammany Hall, Feb. 26, 1838. In the following year, Mr. Tilden published at Albany a pamphlet in opposition to a bill introduced in the Legislature to exempt the Shakers from the operation of the general law relating to trusts. In 1837-'38 and '39 he made political speeches, and in the presidential canvass of 1840 he was an active advocate of Van Buren's re-election, and delivered at New Lebanon, October 3, an address on "Currency, Prices, and Wages," a clear, original, and elaborate discussion of an intricate subject, containing the germs of the opinions that he formulated in after-years. He spoke for free finance and free industry; but the financial distress that had fallen upon the country was too much for any logic, and Van Buren was defeated. In 1841, Mr. Tilden was admitted to the bar. He opened an office in Pine Street, and built up a good practice. In 1844 he founded the "Morning News," in connection with John L. O'Sullivan; but after the presidential election of that year he gave his interest in the paper to his associate, declined the Naval Office, tendered him by the Administration, and resumed law practice.

In 1845 he was chosen a member of the Assembly. His most important declaration during the canvass was a brief letter, dated October 27, on the true policy in regard to the public lands. He held that they should not be made a source of profit to the treasury, or disposed of in such a way as to become a means of private speculation, but granted, for the cost of survey and occupation, "in suitable quantities, to actual settlers, restricted to their use and not for speculative transfer." In the Legislature of 1846 Mr. Tilden was chairman of the special committee to consider that part of Gov.

Wright's message which related to the settlement of the anti-rent troubles; and he wrote the report, which was made the basis of subsequent legislation, settled disputed points, and took the whole subject out of politics.

Mr. Tilden was chosen a delegate from New York city to the Constitutional Convention of 1846; and he was especially active in securing the reconsideration and final defeat of a provision for limiting the issue of bank-notes. In May, 1848, he attended the Democratic National Convention at Baltimore, going as one of the thirty-six Free-Soil delegates chosen by the Utica Convention of February 16, which declared against the admission of slavery into the Northwest Territories. There was a sharp contest between the delegations of the rival Democratic factions of New York at the National Convention. They were first required to pledge themselves to support the candidates of the convention, whether they were admitted or not. The Free-Soil delegation refused to make such a pledge, and when the convention finally admitted both delegations from New York, the Free-Soil delegates refused to take seats. At the Free-soil State Convention held in Utica June 22, 1848, the whole subject was reviewed in a report prepared by Mr. Tilden, and signed by the delegates to the National Convention. The nomination of the Free-Soil ticket, Martin Van Buren and Charles Francis Adams, and the defeat of Cass and Butler, the Democratic candidates, through this secession, followed. From this point the political activity of Mr. Tilden slackened for many years. In 1855 he was the candidate of a Democratic faction for Attorney-General — being defeated, no doubt, greatly to his own satisfaction. Coercive temperance was the main issue of the canvass, and in a letter dated October 3 he took strong ground against the prohibitory act "for the prevention of intemperance, pauperism, and crime."

In the mean while his success in his profession and in the accumulation of wealth had been rapid. In the contested election case of Giles against Flagg in 1855 he showed persistent industry in the collection and grouping of facts; and by his analysis of the vote cast for the various candidates for Comptroller of New York city proved that the claims of the former to the office were without foundation. He exposed and baffled the carefully prepared fraud by which Mrs. Cunningham endeavored to get possession of the estate of Dr. Harvey Burdell, whose mysterious murder was the sensation of the day. In the case of the Cumberland Coal and Iron Company against its directors, tried in 1858, he made good the doctrine of trusts as applied to the officers of corporations. But the most substantial of his successes were not in the nature of public triumphs. He had a rare faculty for rescuing and reorganizing corporations involved in litigation or in financial embarrassment; and during the business vicissitudes

from 1855 to 1869 it is said that nearly every railroad north of the Ohio, and between the Hudson and the Missouri rivers, was at one time or another among his clients. As lawyer and speculator he heaped up an immense fortune in these transactions, becoming a large stockholder in many railroads and in mining companies. One of his latest and most notable enterprises was in building up the financial prosperity of the elevated railroads in New York and then selling out. In 1860 Mr. Tilden was a delegate to the adjourned Baltimore Convention, which nominated Stephen A. Douglas for the presidency. On Oct. 26, 1860, he published a long and carefully prepared letter to the Hon. William Kent, discussing "The Union—its Dangers, and how they can be Averted." Touching the extension of slavery he said that, while he had opposed the repeal of the Missouri Compromise as unadvisable, he thought the true system was non-interference on the part of the Federal Government, that slavery could not be restrained, but that its growth would follow its natural bent southward, without interfering with the spread of Northern emigration. He defended himself from the charge that this doctrine was inconsistent with his declaration in favor of "free soil for free labor" in 1848. After the Southern States had seceded, Mr. Tilden favored a compromise. He was of opinion that, if actual collision could be avoided, there might be a chance for the growth of a Union party in the Southern States; but, when war actually began, he took the ground that it was the duty of the Government to fight it out. When the first call for 75,000 troops was made, he indicated a misapprehension of the nature of the struggle, and advised calling for 500,000 men, one half of them to be put in camps of instruction. When consulted by Secretary Stanton as to the conduct of the war, he said: "You can not count upon finding generals of great military genius, such as the human race produces but once in several centuries; you must make available the superiority of the North in population and its vastly greater superiority in material resources." He was strongly opposed to the financial policy of Secretary Chase, which long after the war he regarded as having doubled its cost. And in regard to the policy of arbitrary arrests and the suppression of newspapers he was also a critic of the Administration. But he was more than once called into consultation even by President Lincoln, and frequently prepared for Democratic conventions a resolution in favor of the prosecution of the war. On Feb. 6, 1863, Mr. Tilden, in company with several other gentlemen, met at Delmonico's, in New York city, and formed a "Society for the Diffusion of Political Knowledge." Their action provoked criticism, and in defense of it Mr. Tilden addressed, Feb. 7, 1863, a letter to the "Evening Post," on "The Perils of the Union, and the Limits of a Constitutional Opposition."

He was a delegate to the Democratic National Convention of 1864, and reported the resolutions adopted by that body, though personally opposed to that in regard to the war. In 1866 he became chairman of the Democratic State Committee, and held that post for several years. On September 17 of that year he delivered a brief address at a mass-meeting held in Union Square, New York, to ratify the action of the "National Union Convention" which met at Philadelphia Aug. 14, 1866. The gist of the speech was, that the States had never been out of the Union; that they were indestructible; and that the reconstruction policy of Andrew Johnson ought to be sustained, as against that of Congress.

Mr. Tilden was a member of the New York Constitutional Convention of 1867, and in opposition to a proposition to enlarge the Erie Canal made an able argument showing that the canal was capable, if kept in good repair and properly managed, of meeting every requirement of trade. At the Democratic State Convention held in Albany, March 11, 1868, to choose delegates to the National Convention, he made a deliberate and vigorous onslaught on the reconstruction policy of the Republican party, discussing at length the feasibility of granting full citizenship to the freedmen. He was a delegate to the Democratic National Convention that met in New York, July 4, of that year, and it was left to his judgment to change the vote of New York to Salmon P. Chase when he considered the change expedient; but he waited too long, and the movement to nominate Seymour was started, and could not be controlled. On October 12 he presented, in a letter to the New York "World" a careful estimate of "The Waste of the War." It was asserted that New York State was not fairly carried for Seymour, and Mr. Tilden was much criticised for a circular in regard to sending in returns that was issued in his name but without his knowledge.

As chairman of the Democratic State Committee, he had made a thorough canvass of the State and put himself into communication with leading Democrats in every locality, so that he knew the composition of the party and could rely on steadfast support in an emergency, and an emergency was at hand. He had for some time been hostile to the disreputable and dishonest politicians who composed the Tweed Ring, and at last he undertook the work of breaking down their power. The origin of the ring, it is said, lay in the equal but arbitrary division of the Board of Supervisors by the Legislature between the two great parties in 1857. The government of the metropolis was gradually taken under the control of the Legislature at Albany, and farmed out to commissions, bureaus, and executive departments; and as a result there grew up a sort of partnership between Democratic officials in New York, and Republican politicians at the capital, in regard to the city patronage. Of this combina-

tion Mr. Tilden said: "The very definition of a ring is that it encircles enough influential men of each party to control the action of both party machines—men who in public push to extremes the abstract ideas of their respective parties, while they secretly join their hands in schemes for personal power and profits." The Tweed Ring was brought to complete organization Jan. 1, 1869, when A. Oakey Hall became mayor, though Connolly, one of the leaders, had been Comptroller for two years before that time; it reached the height of its prosperity April 5, 1870, when the Legislature passed what was known as the Tweed charter, surrendering the various departments of the government of New York city into the hands of men appointed to office by the mayor, for long terms and freed from accountability; it was virtually overthrown in November, 1871. The system of plunder carried on by Tweed and his associates was colossal: they controlled the politics of the metropolis; they had several judges ready to do their bidding; they dominated the Democracy of the State through splendid rascality; and they had schemes for the conquest of the party in the nation. The ring failed in an attempt to put Mr. Tilden off the State Committee in 1869; and in 1870 he opposed the Tweed charter, though he attended the State Convention of that year, where the masters of Tammany Hall flaunted as the rulers of the party; and to the casual observer he seemed content with their companionship. But in 1871 he began the work of organizing opposition. His purpose was to exclude the ring delegation from the Democratic State Convention, and capture the city representation in the Legislature. Many able men were associated with him in the movement, but he was the leader. He marshaled the facts in regard to the frauds committed; he contrived to browbeat and cajole some of the thieves, and frighten them all; he took a share in the legal actions instituted; he went to the State Convention at Rochester, and fought adroitly and yet boldly for the exclusion of the Tammany delegation and for the nomination of a new State ticket, and especially for the nomination of Charles O'Conor as Attorney-General; he came forward as a candidate for Assembly; though the official head of the Democratic party in the State, he proclaimed the necessity of sinking all partisan associations to compass the overthrow of the dishonest managers of a great Democratic organization; as a member of the Legislature, he forced the impeachment of the judges implicated in the guilt of the ring, "against every imaginable obstacle, open and covert, political and personal." The ring was utterly destroyed, and even Tammany Hall was reorganized by its enemies.

In 1873 Mr. Tilden resigned the chairmanship of the Democratic State Committee before making a trip to Europe, but he accepted a re-election on his return. On Sept. 17, 1874, he was nominated for the governorship. In

his speech accepting the nomination, he gave the key-note of the canvass as administrative reform. He carried the State by a plurality of 50,317 over Gov. Dix. His first annual message was characterized by an able discussion of the national finances and by an exhaustive study of the canal question; the second, written at the worst period of prolonged financial distress, was remarkable for its consideration of the causes and remedies of the disaster. His special canal message was a masterly statement of the mismanagement in the building and repairs of the State water-ways. In pursuance of its recommendations, a Canal Commission was appointed, whose investigations of the "unbalanced bid" frauds led to the overthrow of the canal ring and the contract system of repairs. His special message on municipal reform, recommending the appointment of a commission on the subject, was a discussion of one of the most important problems of our day, the proper system of city government. Whether from a sense of public duty, or from a deliberate purpose to serve his own ambition through a policy of honesty, he made his office a public trust, and administered it for the benefit of the people of the State. If one thing more than another distinguished him as a party manager, it was his custom of gathering about him bright young men, more loyal to his personal fortunes than to any party obligation.

The Democratic National Convention of 1876 met in St. Louis, June 27; Gen. John A. McClelland was made chairman, and Francis Kernan presented the name of Gov. Tilden as a candidate for the presidential nomination. His leading opponents were Hendricks, of Indiana, Allen, of Ohio, and Hancock, of Pennsylvania; but he was nominated on the second ballot by a vote of 535 out of 738 delegates. The most dangerous source of antagonism to him lay among that curious class of Democrats who advocated an inflated paper currency; but the bitterest demonstration of hostility was made by the Tammany members of the New York delegation under the lead of John Kelly, who had been induced to re-enter politics by Mr. Tilden after the fall of Tweed. Thomas A. Hendricks was nominated for the vice-presidency. The platform was skillfully drawn, and fitted the leading candidate. In his letter of acceptance, dated "Albany, July 31, 1876," Gov. Tilden affirmed the necessity of reform, and especially reform in the civil service, and discussed carefully the preparation for resumption of specie payments. He dwelt upon the fact that public offices are not "a private perquisite, but a public trust," yet he declared complete reform unattainable so long as the President remained open to the temptations of a renomination, and suggested the advisability of a constitutional amendment making the Chief Magistrate ineligible to re-election. One of the incidents of the canvass was the charge made by the Republicans that, in case of Gov. Tilden's election, the South would demand the

payment of war-claims and the rebel debt. In a letter to Abram S. Hewitt, dated Oct. 24, 1876, Gov. Tilden said that he would veto every bill providing for the payment of rebel war-claims, and declared the thirteenth, fourteenth, and fifteenth amendments to the Constitution binding on the South. Another incident was the charge that he had cheated the Government while the income-tax law was in operation, by refusing to make returns. The defense was that his income at the time was uncertain, and, as he could not make accurate returns, he chose to let the internal-revenue collectors fix an amount and exact the penalty provided by law. On the theory that the Government officials had not got out of him all that the Government was entitled to, a prosecution for back taxes was instituted, which was abandoned after it had served the political purposes for which it was designed.

Tilden and Hendricks received a popular vote of 4,285,992, to 4,033,768 for Hayes and Wheeler, the Republican candidates. There were 184 uncontested electoral votes cast for the former, and 165 uncontested electoral votes cast for the latter, 20 being in dispute—4 from Florida, 7 from South Carolina, 8 from Louisiana, and 1 from Oregon. To the Republican candidates every contested vote was essential to an election, and in their behalf it was necessary to claim that every one of these votes should not only be counted, but counted for Hayes and Wheeler. The canvassing boards in Florida, Louisiana, and South Carolina declared the Republican electors chosen; but their action was challenged as fraudulent, and two sets of electors in each of these States cast their votes, and sent their electoral certificates to Washington. In Oregon there were also double certificates, as the Governor of that State held one of the Republican electors to be ineligible, and regarded one of the Democratic electors chosen. It was also claimed, in behalf of the Republicans, that in several of the Southern States, that were given without legal contest to Mr. Tilden, there had really been no fair election. Popular excitement rose to fever-heat, and the country seemed on the brink of revolution. The majority of Republican politicians claimed that the right of counting the electoral votes lay with the President of the Senate, and that his duty was merely to open the electoral certificates and count up the votes cast. The Democrats asserted that the counting of the electoral votes was the function of Congress, and that with Congress lay the right to scrutinize the true character of the electoral certificates. It was taken for granted that, as the Senate was Republican and the House Democratic, they would disagree in the contested cases when acting separately on them, and that the votes in dispute, through such disagreement, would fail to be counted. Mr. Tilden had prepared and published a pamphlet called "The Presidential Counts," which gave the official record of pro-

ceedings at the counting of electoral votes at every presidential election; which contained a long introduction, analyzing the facts, with a view to showing that the power of making the count, or providing a method of making it, lay in Congress, and that the function of the President of the Senate was simply to open the certificates. A compromise was arranged, by which the Electoral Commission was formed, to which body cases whereon the Senate and the House of Representatives differed might be referred for decision, its judgment to be final, unless set aside by both houses acting separately. The Commission was composed of five Representatives, five Senators, and five Supreme Court judges—eight Republicans and seven Democrats. The Commission refused to go beyond the certificates, and decided in favor of the Hayes electors. The votes in the Commission were invariably on party lines—eight to seven—except in the case of the disputed electoral vote from Oregon, when the Commission voted unanimously not to count the vote of the single Tilden elector, but divided on counting the vote of the Republican elector alleged to be ineligible. In every case the House of Representatives disapproved of the decision of the Commission, and the Senate approved of it.

It has always been a matter of dispute as to whether Mr. Tilden approved of the Electoral Commission compromise; but he certainly acquiesced in the measure. Subsequently a number of cipher dispatches, which passed in regard to the result of the Oregon election and in regard to the proceedings of the canvassing board in Florida, were translated and published, and they were regarded by most Republicans as casting suspicion on Mr. Tilden's action; but a congressional committee appointed to investigate the subject found that, although the Florida canvassing board was for sale, and at least two of his agents who were watching its proceedings were willing to buy it, Mr. Tilden refused to consider the matter.

In the summer of 1877 he went to Europe, and after his return he retained his interest and a great part of his influence in politics. It was commonly taken for granted that the Democratic ticket of 1876 would be put in the field in 1880; but Hendricks, who wanted the first place, refused to become a candidate for the second, and the revolt of Tammany Hall in 1879 weakened the Democratic party of New York. The reaction against Tilden was strong enough, therefore, to make his renomination doubtful when the Democratic National Convention met at Cincinnati, June 22, 1880. Moreover, his health was broken, and possibly he was weary of strife and sick of ambition. At any rate, he sent to the New York delegates a letter dated June 18, refusing to become a candidate for renomination. In 1884, as the time for choosing a presidential candidate drew on, there was made manifest a determination among all elements of the Demo-

cratic party to select Mr. Tilden, and nothing but his solemn assurances that he could not accept a nomination checked the movement.

His closing years were passed in retirement at his country residence on the Hudson. His health was for a long time feeble, and death came with the general breaking down of his system. He was unmarried, and left the main portion of his large fortune to trustees, to be devoted to public use, the design being to found a great library in New York city. He was buried at New Lebanon. His life was written by Theodore P. Cook (New York, 1876), and his writings have been edited by John Bigelow (2 vols., New York, 1885).

TRENCH, RICHARD CHENEVIX, an English clergyman and author, born Sept. 9, 1807; died in London, March 28, 1886. He was graduated at Trinity College, Cambridge, and was ordained to a curacy in Suffolk. He first attracted notice as a poet, and in 1835 published his first work, "The Story of Justin Martyr, and other Poems." In 1838 appeared his "Sabbath, Honor Neal, and other Poems." About this time he became acquainted with Samuel Wilberforce, who exercised a considerable influence upon his after-life. He became a curate under Dr. Wilberforce at Alver-



RICHARD CHENEVIX TRENCH.

stoke in 1841, and rector of Itchen Stoke in 1845. He was Hulsean lecturer at Cambridge in 1845 and 1846, and delivered courses of lectures on "The Fitness of Holy Scripture for unfolding the Spiritual Life of Men" and "Christ the Desire of all Nations; or the Unconscious Prophecies of Heathendom." In 1855 he became Dean of Westminster, and some years later was selected as one of the editors of the New Commentary of the Bible, proposed by the Speaker of the House of Commons. In 1863 he was appointed to succeed Dr. Whately as Archbishop of Dublin, and a few years later he took a prominent part in

the agitation caused by the proposal to disestablish the Irish Church, by strenuously opposing the measure to that effect. He resigned the archbishopric in 1884, in consequence of ill-health. His other published works are "Notes on the Parables of our Lord" (1841); "Elegiac Poems" (1841); "Poems from Eastern Sources" (1842); "Genoveva and other Poems"; "Five Sermons preached before the University of Cambridge in 1843"; "Exposition of the Sermon on the Mount"; "Sacred Poems for Mourners"; "Notes on the Miracles of our Lord"; "Sacred Latin Poetry"; "The Star of the Wise Men"; "On the Study of Words" (1851); "On the Lessons in Proverbs" (1853); "Synonyms of the New Testament" (1854); "Alma and other Poems" (1854); "English, Past and Present" (1855); "Essay on the Life and Genius of Calderon" (1856); "Five Sermons on Christ" (1856); "On Some Deficiencies in our English Dictionaries" (1857); "Select Glossary of English Words used formerly in Senses different from their Present"; "Shipwrecks of Faith"; "Studies on the Gospels"; "Household Book of English Poetry"; "St. Augustine as an Interpreter of Scripture"; "The Epistles of the Seven Churches of Asia Minor." A selection from his poems appeared in New York in 1856.

TURKEY, an empire in southeastern Europe and western Asia. The government is an absolute monarchy, the will of the Sultan being supreme, unless in conflict with the precepts of the Mohammedan religion. The following are the Ministers of State: President of the State Council, Aarifi Pasha; Minister of Foreign Affairs, Said Pasha; Minister of War and Grand Master of Artillery, Ali Saib Pasha; Minister of Marine, Hassan Pasha; Minister of the Interior, Munir Pasha; Minister of Justice, Djevdet Effendi; Minister of Finance, Zihni Effendi; Minister of Commerce and Agriculture, Hakki Pasha; Minister of Public Instruction, Munif Pasha; Intendant of Evkafs, Mustapha Pasha; Minister of Public Works, Zuhni Effendi.

Area and Population.—The total area of the Turkish Empire is 2,406,522 square miles, and the population 43,978,100, inclusive of Bulgaria and Eastern Roumelia, the provinces occupied by Austria, the vilayet of Tripoli, Egypt, and the Soudan. The area of the immediate possessions in Europe is 68,850 square miles, the population 4,500,000; the area of the immediate possessions in Asia, 729,170 square miles, the population 16,133,000.

Of the total population of the Ottoman dominions in Europe and Asia about 16,000,000 are Mussulmans, and 5,000,000 are divided among seven sects, which possess the rights of religious freedom and autonomous ecclesiastical organizations.

The population of Constantinople, with its environs, is about 1,200,000; of Damascus, 200,000; of Smyrna, 200,000; of Bagdad, 180,000; of Aleppo, 120,000; of Adrianople, 100,

000; of Salonica, Beyrut, Erzerum, and Cæsarea, 60,000 each.

The Army.—The Ottoman army in 1885 comprised 264 battalions of infantry, 189 squadrons of cavalry, 104 batteries of field and 36 of mountain artillery, 8 battalions of fortress artillery, 10 battalions of artificers, 19 companies of engineers, 1 company of telegraphists, and 5 battalions of infantry train, three of artificers, and 3 of firemen. The total strength was 9,815 officers and 149,144 men, with 23,025 horses, 828 field-cannon, and 2,374 stationary guns. There were under arms, in March, 1886, 270 battalions of infantry, 196 squadrons of cavalry, and 168 batteries of artillery belonging to the Nizam reserve, and 296 battalions belonging to the Redif, numbering altogether 475,000 men.

The Navy.—The fleet in 1886 consisted of 15 large armor-clad vessels, of which 7 were frigates and 8 corvettes; 46 wooden vessels and armored gunboats; and 17 torpedo-boats. The largest ironclad is the "Mesoudieh," of 8,760 tons, with 12 inches of armor at the water-line, and carrying twelve 18-ton guns. The next in size is the "Hamidieh," with 9-inch plates, 6,530 tons displacement, ten 12-ton guns, and three 4-ton guns. The 13 smaller iron-clads range from 2,046 to 6,400 tons, and have from 5½ to 9 inches of armor.

Finances.—In accordance with an arrangement with the creditors of the Porte, the Ottoman debt, amounting to £190,997,980 sterling, was consolidated and unified in 1881 by the issue of new bonds of the amount of £92,225,827 sterling, not including £14,211,407 of bonds for the Roumelian railroads, which make the total £106,437,234. Down to the end of 1885 there were £1,540,017 of bonds paid off, leaving a foreign debt of £104,897,217 sterling.

Commerce.—In 1884-'85 the total value of dutiable merchandise imported was 1,975,784,035 piasters, and the value of the exports 1,239,028 piasters, not inclusive of tobacco, of which 10,299,280 kilos, valued at about \$57,500,000, were exported, making the total value of the exports \$112,016,885, while that of the imports was \$86,934,453. The imports from the United States were valued at 28,948,750 piasters, and the exports to the United States at 11,391,888 piasters. The largest articles of export, besides tobacco, were cereals, of the value of 231,048,452 piasters; fruits, 194,140,530 piasters; raw silk, 64,202,883 piasters; and cocoons, 29,985,000 piasters; opium, 78,120,764 piasters; mohair, 55,155,487 piasters; raw cotton, 47,664,608 piasters; coffee, 42,370,320 piasters. The principal imports were cotton and cotton manufactures, valued at 520,047,885 piasters; cereals and flour, 161,561,233 piasters; sugar, 138,148,632 piasters; woolens, 77,388,759 piasters; coffee, 63,437,279 piasters; metals, 61,431,104 piasters; iron manufactures, 57,315,809 piasters. Arms and military engines, articles for schools and churches, agricultural implements, and machinery for rail-

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roads are not included in the returns of imports, being free of duty. There have been sales of American reapers in the Turkish Empire in the past two years.

The merchant marine in 1883 consisted of 10 steamers of 8,866 tons, and 391 sailing-vessels, of 63,896 tons, besides coasting-vessels.

Railroads.—There were in operation at the end of 1885 a line of railway from Constantinople to Adrianople, 210 miles; one from Adrianople to Sarembi, 152 miles; one from Salonica to Uskub, 150 miles; one from Uskub to Mitrovitz, 75 miles; others between Kuljeli and Dageaghatch, Tirnova, and Jamboli, and Banjalouki and Novi, 199 miles altogether; and one from Zenica and Brod, 118 miles; making in all 904 miles in European Turkey

and Roumelia. The length of the railroads in Asia Minor was 347 miles.

Telegraphs.—The length of telegraph lines in 1884 was 14,617 miles, with 26,060 miles of wire. The number of dispatches in 1882-'83 was 1,259,133.

Treaties with the United States.—Minister Cox induced the Turkish Government to agree to an extradition and a naturalization treaty. The two treaties were negotiated between the two Governments twelve or fifteen years ago, but amendments made by the United States Senate were then declared unacceptable by the Porte. The naturalization treaty is of the same character as the one existing between the United States and Great Britain and that concluded with Austria-Hungary.

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UNITED BRETHREN IN CHRIST. The following is a summary of the statistics of this Church as they are given in the "United Brethren Year-Book" for 1887: Number of churches, 4,332; of members, 185,103; of itinerant ministers, 1,378; of local preachers, 890; of Sunday-schools, 3,169, returning 28,547 officers and teachers and 179,729 pupils; increase of members during the year, 11,838; value of church property, \$8,345,064; of parsonages, \$362,545; total amount of salaries paid ministers, \$416,729.

Contributions.—For ministerial aid, \$3,690; for missions, \$61,975; for church erection, \$4,262; for bishops' support, \$5,999; for church building and expenses, \$251,475; for colleges and seminary, \$38,630; for ministerial education, \$1,329; for Union Biblical Seminary (special), \$2,492; for Sunday-school fund, \$1,795; local Sunday-school collections, \$54,337; the whole footing up, in round numbers, to \$842,700. Of the 49 annual conferences, 46 are in the United States, one is in Canada, one in Germany, and one in West Africa; by nationality, 45 are English, three German, and one Sherbro; 31 are self-sustaining, 14 are mission conferences, and four are mission districts. For the purpose of supervision, the annual conferences are grouped in six districts, each of which is superintended by a bishop, who is elected every four years by the General Conference. Of the seven bishops, one is *emeritus*, four are engaged in regular episcopal work in the United States, and two are missionary bishops. The publishing-house at Dayton, Ohio, has a property and assets valued at \$229,260, the profits of which for the last year were \$17,417, and which publishes ten periodicals relating to various departments of church work and books. Sixteen new volumes were published in 1886. Besides the publications of this establishment, seven "unofficial" periodicals are published in the inter-

est of United Brethren enterprises in the United States, one journal in connection with the German mission, and one in connection with the African mission. The Church Erection Society received for the year ending April 30, 1886, \$5,572, making the whole amount received by it since its organization, \$28,517; and it assisted during the same year 19 churches, making the whole number of churches assisted since its organization, 110. The receipts of the Board of Education for the same year were \$1,974. It gave aid to 20 beneficiaries. Its report gives the returns of nine academies and seminaries, ten colleges, and one theological institution of the Church. With these were connected 62 professors, 64 other teachers, and 2,486 students, with 39 students in the theological seminary, of whom 137 were studying for the ministry. Ten professorships were endowed. The 29 buildings, with their grounds, of these institutions were valued at \$391,000. Endowments of \$401,889 were returned, with contingent assets amounting to \$146,550, against all of which was a total indebtedness of \$294,740. The receipts of the Home, Frontier, and Foreign Missionary Society, exclusive of returned loans, were \$41,089. The receipts in loans were \$38,629. The permanent fund amounted on the 30th of April, 1886, to \$64,114. Three hundred and ninety-four missionaries were employed in the home and frontier work. Two missions had been established in the Sherbro country, in West Africa, having 7 stations, from which 257 towns were reached, with 9 organized churches and 2,631 members, 568 pupils in Sunday-schools, and 537 in day-schools. Six American and 29 native missionaries were employed, with 78 preachers, lay workers, and teachers. The increase in the number of members during the year had been 956. The German mission returned 8 towns reached, 49 appointments, with 20 organized churches, 10

German missionaries, 10 preachers, 615 members, and 247 pupils in Sunday-schools. The Woman's Missionary Association had received \$12,054. It co-operated with the Home, Frontier, and Foreign Missionary Society in the work of the Sherbro and German missions, and sustained a Chinese mission at Portland, Oreg. It employed 18 ministers and preachers, and returned 171 members, 319 pupils in Sunday-schools, and 116 pupils in day-schools.

A Church Commission which was appointed by the General Conference of 1885 to consider the present Confession of Faith and Constitution of the Church and prepare amended forms of the same, has published its report for the information of the Church preparatory to taking a vote upon its adoption in 1888. The commission was instructed in the action embodying its appointment to preserve unchanged in substance the present Confession of Faith so far as it is clear, to retain the present itinerant plan, and to keep sacred the general usages and distinctive principles of the Church on moral reforms. The amendments proposed in the Confession of Faith include verbal changes and reconstruction of sentences for the sake of grammatical accuracy and definiteness of expression; a systematic arrangement of the Confession, under distinct articles; and the addition of articles of justification, regeneration and adoption, sanctification, the Christian Sabbath, and the future state.

The principal changes in the Constitution consist in the introduction of lay representation into the General Conference, which, it is provided, "shall consist of elders and laymen," and of the following new rule:

We declare that all secret combinations which infringe upon the rights of those outside their organization, and whose principles and practices are injurious to the Christian character of their members, are contrary to the Word of God, and that Christians ought to have no connection with them. The General Conference shall have power to enact such rules of discipline with respect to such combinations as in its judgment it may deem proper.

The amended documents are to be submitted to the people of the Church for approval or disapproval in November, 1888; the Confession of Faith as a whole, and the Constitution as a whole, except as to the provision for lay delegation and the rule against secret societies, which are to be submitted separately.

UNITED STATES. Administration.—The following were the chief officers during the year: President, Grover Cleveland, Democrat, of New York; Secretary of State, Thomas F. Bayard, Delaware; Secretary of the Treasury, Daniel Manning, New York; Secretary of War, William C. Endicott, Massachusetts; Postmaster-General, William F. Vilas, Wisconsin; Attorney-General, Augustus H. Garland, Arkansas; Secretary of the Navy, William C. Whitney, New York; Secretary of the Interior, Lucius Q. C. Lamar, Mississippi; Chief of Bureau of Statistics, William F. Switzler; Director of the Mint, James P. Kimball; Com-

missioner of Customs, John S. McCalmont; Treasurer, Conrad N. Jordan; Superintendent of Coast Survey (acting), Frank M. Thorn; Register of the Treasury, William S. Rosecrans; Comptroller of the Currency, William L. Trenholm; Commissioner of Internal Revenue, Joseph S. Miller; Commissioner of Navigation, Jarvis Patten, succeeded by Charles B. Morton; Commissioner of the General Land-Office, William A. J. Sparks; Commissioner of Pensions, John C. Black; Commissioner of Indian Affairs, John D. C. Atkins; Commissioner of Patents, M. V. Montgomery; Commissioner of Education, John Eaton, succeeded by Nathaniel H. R. Dawson; Director of the Geological Survey, John W. Powell; Commissioner of Labor, Carroll D. Wright; Commissioner of Railroads, Joseph E. Johnston; Commissioner of Agriculture, Norman J. Colman; Fish Commissioner, Spencer F. Baird; Civil-Service Commissioners, Alfred P. Edgerton, John H. Oberly, and Charles Lyman. Supreme Court: Chief-Judge, Morrison R. Waite; Justices, Samuel F. Miller, Stephen J. Field, Joseph P. Bradley, John M. Harlan, William B. Woods, Stanley Matthews, Horace Gray, and Samuel Blatchford; Clerk, James H. McKenney.

Army.—The expenditures of appropriations under direction of the Secretary of War, by requisition upon the Treasury, during the year ending June 30, 1886, amounted to \$36,990,903.38. The sum of \$1,208,016.46, pertaining to the War Department appropriations, was carried to the surplus fund June 30, 1886. The Lieutenant-General reports the army at the date of the last consolidated returns, to consist of 2,103 officers and 23,946 men.

Military Academy.—There were present Sept. 1, 1886, 309 cadets. The total number of officers for duty at the post, including 8 professors and 2 surgeons, is 58. The Superintendent strongly favors the general adoption of the competitive system in the selection of candidates, and says that in the ten years beginning with 1873, 269 cadets were graduated out of 569 appointed after competition, and 250 cadets graduated out of 1,001 appointed without competition.

Navy.—The navy, aside from ships in course of construction, consists of: 1. Fourteen single-turreted monitors, none of which are in commission, nor at the present time serviceable. The batteries of these ships are obsolete, and they can only be relied upon as auxiliary ships in harbor-defense, and then after such an expenditure upon them as might not be deemed justifiable. 2. Five fourth-rate vessels of small tonnage, only one of which was designed as a war-vessel, and all of which are auxiliary merely. 3. Twenty-seven cruising-ships, three of which are built of iron, of small tonnage, and twenty-four of wood. Of these wooden vessels it is estimated by the Chief Constructor of the Navy that only three will be serviceable beyond a period of six years, at which time it

may be said that of the present naval force nothing worthy the name will remain.

All the vessels heretofore authorized are under contract or in course of construction, except the armored ships, the torpedo and dynamite boats, and one cruiser. As to the last of these, the bids were in excess of the limit fixed by Congress.

Indians.—The following are statistics for the year ending June 30, 1886:

Total area of reservations in square miles.....	212,466
Total Indian population, exclusive of Alaska.....	247,761
Number of mixed bloods.....	20,567
Total Indian and mixed population, males.....	120,527
Total Indian and mixed population, females.....	127,234
Number of Indians living upon and cultivating lands allotted.....	9,612
Number of male Indians who labor in civilized pursuits, full blood.....	38,776
Number of male Indians who labor in civilized pursuits, mixed blood.....	4,647
Percentage of subsistence obtained by labor in civilized pursuits.....	68
Percentage of subsistence obtained by hunting, fishing, etc.....	9
Percentage of subsistence obtained by issue of Government rations.....	23
Number of missionaries:	
Male.....	105
Female.....	38
	148

The Commissioner of Indian Affairs discusses at considerable length the condition of the five civilized tribes of the Indian Territory—the Cherokees, Choctaws, Chickasaws, Creeks, and Seminoles—and sets forth the evil effects flowing from the holding of their land in common, contrary to the general policy which is being pursued by the Government with other Indians.

It is shown by the agent's report that there is within the limits of the Territory owned and occupied by the five civilized tribes a population aggregating 100,500 souls, composed of 64,000 native Indians, adopted whites, freedmen, etc., and 36,500 white people who are there as licensed traders, railroad-men, laborers, claimants to Indian citizenship, cattle-men, intruders, thieves, loafers, gamblers, etc. The land held by them aggregates 19,785,000 acres.

The Cherokees, Creeks, and Choctaws spend yearly about \$200,000 for the education of their children.

Pension Bureau.—There were at the close of the year ending June 30, 1886, 365,783 pensioners, classified as follows: 265,854 army invalids; 80,162 army widows, minor children, and dependent relatives; 2,953 navy invalids; 1,878 navy widows, minor children, and dependent relatives; 1,539 survivors of the War of 1812, and 13,397 widows of those who served in that war, showing a diminution in survivors during the year of 1,406, and of widows of 3,815. There were added to the rolls during the year the names of 40,857 new pensioners, and the names of 2,229 whose pensions had been previously dropped were restored to the rolls. During the same period the names of 22,089 pensioners were dropped from the rolls for various causes, leaving a net increase of 20,658 names. The average annual value of each pension at the close of the year

was \$122.23, a gain of average annual value over last year of \$11.88. The aggregate annual value of all pensions was \$44,708,027.44; an increase of like value for the year of \$6,617,-041.51. The amount paid for pensions during the year was \$63,797,831.61; a decrease in amount over the previous year of \$1,135,-456.51; a difference due to the difference in amounts of "arrearages" paid. The difference between the amount paid and the annual values is due to first payments, including "accrued" and "arrears."

In the aggregate, 1,018,735 pension claims have been filed since 1861, and in the same period 621,754 claims have been allowed of all classes. The amount paid for pensions since 1861 is \$808,624.811.57.

Public Lands.—The sales, entries, and selections of public land under the various acts of Congress relating thereto, for the year ending June 30, 1886, embrace 20,991,967.18 acres, and of Indian lands 1,132,596.74 acres, making a total of 22,124,563.92 acres; being an increase over the year 1885 of 1,129,050.34 acres, and a decrease, as compared with the fiscal year 1884, of 5,406,606.08 acres. The receipts from the disposals of public lands are \$7,412,-767.31; from sales of Indian lands, \$1,607,-729.63; a total of \$9,020,496.94, being an increase as compared with the year 1885 of \$400,898.62, and a decrease as compared with the year 1884 of \$3,758,633.39; to which is to be added \$10,587.40 received for certified copies of records furnished by the General Land-Office, making the total receipts for the year from all sources \$9,031,084.34.

State selections were made under educational and internal improvement grants aggregating 318,615.70 acres, an increase of 19,-374.02 acres over the year 1885.

The map of the United States has been compiled and 3,500 copies published. Maps of California, Wisconsin, Missouri, and Florida were revised and published. New maps of Nevada, Colorado, New Mexico, and Louisiana have been compiled and traced. New maps of Arkansas, Montana, Arizona, and Indiana are in process of construction. All the new maps were compiled from new projections.

Five railroad patents were issued during the last fiscal year, embracing 100,823.02 acres; a decrease, as compared with the previous fiscal year, of 1,053,126.98 acres. Lists of selections are on file amounting to 16,571,299.70 acres, an increase of 2,298,241.89 acres.

In fifteen of the public-land States, the swamp and overflowed lands, "made thereby unfit for cultivation," were granted by Congress to enable those States "to construct the necessary levees and drains to reclaim such lands." At the date of the original acts, in 1849 and 1850, it was estimated that 5,000,000 acres would satisfy the grant. Claims have been presented up to the present time for more than 75,000,000 acres, and patents have been issued for over 56,000,000 acres. There

is little or no evidence to show that the lands conveyed to the States under this grant have ever been appropriated to the purposes for which the grant was made.

Penitentiaries and Jails.—The Government has under its control six penitentiaries and three jails, situated as follows: Penitentiaries—Sioux Falls, Dak.; Boisé City, Idaho; Deer Lodge, Mont.; Salt Lake City, Utah; McNeil's Island, Wash.; and Laramie, Wyo. Jails—Sitka, Alaska; Fort Smith, Ark.; and Washington, D. C. Congress recently appropriated \$25,000 for completion and repairs of the penitentiary at Laramie, Wyo.; \$25,000 for completion of the penitentiary at Deer Lodge, Mont., and \$50,000 for construction and completion of the penitentiary at Salt Lake city, Utah. The improvements at Deer Lodge have been completed; at the two other penitentiaries the contemplated changes have not as yet been made.

During the year ending June 30, 1886, there were received in the different penitentiaries, reformatories, etc., throughout the United States 1,027 United States prisoners. There were discharged during the same period 779. The total number in custody on the 30th day of June, 1886, was 1,261.

Post - Offices.—When the fiscal year 1886 closed, the post-offices of the United States numbered 53,614, besides 497 branch offices or stations. By advancements at the quarterly periods, upon the showing of their returns, 32 offices had been, during the year, added to the presidential list, bringing the number in the last three months to 2,265. But the annual review and readjustment, which took effect on July 1, relegated 45 third-class offices to the fourth class, while at the same time but 24 of the latter were advanced. Thus the number of presidential offices with which the current year began was 2,244, a gain of 11; of these, 75 of the first class, a gain of 4; 400 of the second class, a gain of 17; and 1,769 of the third class, a loss of 10 as compared with the beginning of the late year. The branch offices are auxiliary to the large city offices, and of these 357 are only for the sale of stamps and stamped paper; 44 others are also registry offices, 25 more are both registry and money-order stations as well, and 71 more are carrier-stations in addition, only 4 of which are not also money order stations, all being registry offices. In the fourth class, comprising 51,370 offices, there was a gain of 2,351, the new establishments having been 3,482, those discontinued 1,120, and 11 become presidential. By the increase in offices the New England States gained 50; the five Middle States, with the District of Columbia, 261; fourteen Southern States and the Indian Territory, 1,444; the three States and three Territories on the Pacific slope, 106; the Western States and Territories, 501.

The appointments of postmasters during the last fiscal year numbered altogether 22,747, of which 9,112 were made to fill vacancies occa-

sioned by resignations or expired commissions, 587 to vacancies caused by death, 3,482 on the establishment of new offices, and 9,566 upon removals. Of the total number of appointments, 1,039 were made by the President, the vacancies having occurred from the following causes, respectively, viz.: By expiration of commission, 468; by resignations, 253; by death, 24; by removals or suspensions, 247; and to offices which had been assigned from the fourth to the third class, 47.

The free-delivery service by carriers was, during the year, extended to three cities, Aurora, Ill., Duluth, Minn., and Newport, Ky., making, on the 30th of June, 1886, 181 free-delivery offices in all. Of carriers, there was an increase of 483, giving a total of 4,841.

The number of pieces of mail matter, counting collections and deliveries, handled by the carriers during the year was 1,949,520,599, an increase over the previous year of 11·75 per cent. The average number of pieces handled by each carrier was 402,710, a gain of $\frac{1}{10}$ of 1 per cent. The average cost per piece was 2·2 mills, as against 2·3 the year before.

The amount of postage on local matter is reported at \$5,839,242.97, an increase of 10·57 per cent. on the previous year; while the excess of such postages over the cost of the service was \$1,526,936.27, a gain of 17·93 per cent.

The money-order system has been extended to 311 additional post-offices, while but 10 were dropped from its list.

During the year there were issued 7,940,302 domestic orders, amounting to nearly \$114,000,000, 5,999,428 postal notes, amounting to \$11,718,000, and 493,423 international orders, aggregating \$7,178,786.21, besides the payment of foreign orders, reaching a total of almost \$4,000,000.

The financial condition of the postal service for the past year has improved beyond expectation. The previous year closed with a deficiency of postal revenue to meet postal expenditures of almost \$7,000,000, exclusive of the cost of transportation on the Pacific Railroads. Both the reduction in the rate of postage on second-class matter, and the increase in the unit of weight of first-class matter from a half ounce to an ounce, came into effect on July 1, 1885. Although the revenue falls short of the expected total by \$64,000, the expenditures have been limited to less than \$51,000,000, and the deficiency is diminished within that of the year before, being below \$6,900,000, exclusive of Pacific Railroad service.

Mexico and the Cutting Case.—The encouraging development of beneficial and intimate relations between the United States and Mexico has been marked within the past few years. The President urgently renews his former representation of the need of speedy legislation by Congress to carry into effect the Reciprocity Commercial Convention of Jan. 20, 1883.

In the summer A. K. Cutting, an American citizen, was imprisoned in Mexico, charged with the commis-

sion of a penal offense in Texas, of which a Mexican citizen was the object. After demand had been made for his release the charge against him was amended so as to include a violation of Mexican law within Mexican territory. This joinder of alleged offenses, one within and the other exterior to Mexico, induced the President to order a special investigation of the case—pending which Mr. Cutting was released. The incident has disclosed a claim of jurisdiction by Mexico, novel in our history, whereby any offense, committed anywhere by a foreigner, penal in the place of its commission, and of which a Mexican is the object, may, if the offender be found in Mexico, be there tried and punished in conformity with Mexican laws. This jurisdiction was sustained by the courts of Mexico in the Cutting case, and approved by the executive branch of that Government, upon the authority of a Mexican statute. The appellate court, in releasing Mr. Cutting, decided that the abandonment of the complaint by the Mexican citizen aggrieved by the alleged crime (a libelous publication), removed the basis of further prosecution, and also declared justice to have been satisfied by the enforcement of a small part of the original sentence.

Civil Service.—The Civil-Service Commission, in its report for the year ending Jan. 16, 1886, says:

Applicants were examined within the year from every State of the Union and from every Territory except Utah. From three to six different examinations were held in each of seventeen States. The whole number of persons examined under the commission during the year was 7,602, of whom 6,872 were males and 730 were females. The whole number of examinations held within the year was 159, all of which were competitive except 5, and at these five examinations only 8 persons were examined. If to those examined during the year the number examined during the periods covered by the first and second annual reports be added, the whole number thus far examined will be shown to be 17,491. Of the 7,602 examined during the year, 5,034 attained the minimum of 65 per cent., which makes them eligible for appointment, and 2,568 failed to show that degree of proficiency. Of those examined, trifly less than two thirds (66·22 per cent.) succeeded. The average age of all those examined was thirty years.

The whole number of appointments during the year from those examined, each being for the probationary period of six months, was 1,876. If to those we add 2,300, the number appointed from the examinations during the previous eighteen months (it being borne in mind that appointments from the examinations did not begin until July 16, 1883), it will be seen that 4,176 have been appointed in two years and a half from those examined under the Commission. This is between one third and one fourth of the whole number of places to which the examinations extend.

Alaska.—The Governor of Alaska is Alfred P. Swineford; Clerk of District Court and *ex officio* Secretary and Treasurer, Henry E. Hayden, succeeding Andrew T. Lewis; District Judge, Lafayette Dawson; District Attorney, M. D. Ball; Marshal and Surveyor-General, Barton Atkins. The Governor, under date of October 1, reports as follows to the Secretary of the Interior:

I can therefore speak of my own personal knowledge only of that part of Alaska which is included in the thirty-mile strip of mainland that lies between British Columbia and tide-water, from Dixon's Entrance to Mount Saint Elias, and the islands of the Alexander Archipelago—a geographical division embracing less than one twentieth of the whole Territory. I have, however, been able to obtain some little information concerning the mineral and other resources of the region beyond the Mount Saint Elias Alps. The

best authorities up to a year ago credited Alaska with 581,107 square miles, but later and more accurate computations very materially increase these figures. No accurate enumeration of the inhabitants of Alaska has ever been made, unless it may have been prior to the purchase of the Territory by the United States. Nor is it possible, in my opinion, to arrive at more than a mere approximation of the number of native people.

From the best information at hand I estimate the population of southeastern Alaska to be about as follows:

White:	
Sitka.....	600
Juneau.....	1,500
Douglas Is'and.....	500
Wrangell and vicinity.....	150
Killisnoo and vicinity.....	150
All other places.....	200
Total whites.....	8,100
Natives (about)	7,500

Total.....	10,600
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At Sitka (latitude 54° 3', longitude 135° 19'), for the year ending Aug. 31, 1886, the highest monthly mean temperature was 57·8°, in August; the lowest, 29·2, in January; annual mean, 44·8°; maximum, 72°, in July and August; minimum, 4°, in January; total precipitation of rain and melted snow, 109·4 inches; number of clear days, 44; fair, 122; cloudy, 199; days on which '01 of an inch or more of rain and melted snow fell, 248.

The fur-trade of Alaska may be approximately stated at the market value of \$2,500,000 annually. Petroff, in his report, gives a total value of Alaska furs for 1880 in the London market at \$2,181,832.

Coal has been found at various points in this Territory, but as yet no well-directed effort has been made to develop any of the seams.

Some beds of white marble, apparently of very fine quality, have been found and partially opened, both on Baranoff Island, near Sitka, and on Admiralty Island, near Killisnoo.

The great mine and mill on Douglas Island stand to the credit of the only really practical effort which has yet been made to develop any one of the numerous gold-bearing ledges in southeastern Alaska.

Running on short time, or rather working no more than what would be equal to full time for two-thirds of its whole number of stamps, the mill turned out in the first twelve months a little over \$750,000, in gold bullion, while yet having on hand an accumulation of sulphurets (concentrates) of the value of at least \$250,000 more.

Other mines are being opened on the same ledge, which has been located by means of exploratory test pits and trenches over a length of eight or nine miles, and large new mills are in contemplation, one or two of which are almost certain to be built the coming year.

Summarized, the annual value of the products of Alaska's industries is as follows:

Fur-trade.....	\$2,500,000
Gold bullion (including placer-mines).....	800,000
Fish (including cod and oil).....	725,000
Lumber.....	50,000
Total.....	\$4,075,000

UNITED STATES, FINANCES OF THE. The incoming of the year 1886 was by no means free from apprehensions in respect to the financial outlook. The depression of prices during the latter half of the year preceding was thought not unlikely to continue, to the injury of many industrial enterprises, and to the prejudice of the financial affairs of the nation. It was feared that the accumulation of silver in the Treasury vaults would render silver payments compulsory, and that the large issue of silver certificates, resulting in the general use of such certificates in payments to the Government, might leave the Treasury without sufficient resources for payments in gold. Though Congress did little to improve the situation, its definite failure to do some things gave assurance that for a time at least the foundations of industry were not to be disturbed. The defeat of efforts to secure the unlimited coinage of silver, and the compulsory disbursement of the surplus in the Treasury, tended to restore confidence. The course of the Administration was especially calculated to remove distrust. By judicious measures, which were warmly commended in business circles, the Secretary of the Treasury made it clearly understood that gold payments could be, and would be, maintained. The chief features of the year's transactions were the large reduction of the public debt, the coinage and accumulation in the treasury of the standard silver dollars, and the gradual contraction of national bank circulation. The following statements exhibit in detail the result of such transactions:

Receipts and Expenditures.—The ordinary revenues of the Government, from all sources, for the fiscal year ending June 30, 1886, were:

Customs.....	\$192,398,738 94
Internal revenue.....	116,805,984 45
Sales of public lands.....	5,630,994 34
Tax on national banks.....	2,693,715 87
Profits on coinage.....	5,904,616 26
Customs fees, fines, etc.....	1,014,758 58
Consular fees, etc.....	3,883,570 49
Pacific Railroad interest.....	679,189 43
Pacific Railroad sinking-fund.....	1,997,905 47
Surveying public lands.....	192,735 63
Sale of Government property.....	268,390 39
Immigrant fund.....	181,547 09
Soldiers' Home fund.....	245,486 98
Sale of naval vessels.....	40,357 19
Tax on tonnage.....	506,284 50
Revenues of District of Columbia.....	2,105,836 61
Miscellaneous.....	8,259,680 20
Total.....	\$336,439,727 06

Ordinary expenditures for same period were:

Civil list.....	\$21,955,604 04
Foreign intercourse.....	1,392,320 88
Indian service.....	6,099,158 17
Pensions.....	63,404,864 03
Military establishment.....	84,324,152 74
Naval establishment.....	13,997,887 74
Miscellaneous, including public buildings, lighthouses, and collecting the revenue.....	47,986,683 04
District of Columbia.....	2,892,321 89
Interest on the public debt.....	50,550,145 97
Total.....	\$242,483,138 50

As compared with the previous fiscal year, the revenues increased \$16,369,663.78, the principal items of increase being—customs, \$11,433,184.10; internal revenue, \$4,307,-

210.94; customs fees, \$107,319.31; and miscellaneous, \$521,949.43. There was a decrease of \$3,620,643.10 in consular fees, surveying public lands, profits on coinage, national bank taxes, and other miscellaneous sources, making a net increase of revenue for the year of \$12,749,020.68. There was a decrease in expenditures of \$26,099,385.22, as follows: Military establishment, \$8,346,425.73; foreign intercourse, \$4,107,288.23; naval establishment, \$2,113,191.93; civil list, \$1,871,338.07; and miscellaneous, \$9,661,141.26. There was an increase of \$7,302,596.54 in expenditures for pensions, making a net decrease in expenditures for the year of \$18,796,788.68. The excess of revenue over expenditures was \$93,956,588.56, of which \$44,531,350 was applied to the redemption of bonds for the sinking-fund, and the remainder to ordinary redemption of the public debt. The revenue derived from the various objects of internal taxation during the last two fiscal years is shown in the following table:

OBJECT.	1885.	1886.
Spirits.....	\$67,511,203 63	\$69,092,266 00
Tobacco.....	26,407,088 48	29,907,362 53
Fermented liquors.....	18,280,782 03	19,676,731 29
State banks and bankers.....	25,000 00	.....
Miscellaneous.....	247,041 93	226,509 63
Total	\$112,421,121 07	\$116,902,869 44

The receipts from customs and internal revenue by quarter-years during 1885-'86 were:

QUARTER.	1885.	1886.
CUSTOMS:		
First.....	\$54,102,858 65	\$52,203,859 19
Second.....	88,491,727 80	43,541,187 23
Third.....	45,636,078 80	49,564,785 89
Fourth.....	43,241,274 59	41,593,199 20
Total	\$181,471,899 84*	\$192,905,028 44*
INTERNAL REVENUE:		
First.....	\$28,639,010 76	\$28,600,281 06
Second.....	27,858,438 98	29,912,390 27
Third.....	25,070,977 51	25,990,668 74
Fourth.....	30,900,298 29	32,302,596 41
Total	\$112,498,725 54	\$116,805,986 43

* Includes tax on tonnage.

The following table shows the receipts and expenditures of the Government for the calendar years 1885 and 1886:

ITEMS.	1885.	1886.
RECEIPTS :		
Customs.....	\$184,622,399 24	\$204,514,416 14
Internal revenue.....	114,483,947 13	115,827,658 12
Sales of public lands.....	5,288,125 47	7,185,162 94
Tax on national banks.....	2,792,306 67	2,593,870 16
Profits on coinage.....	5,610,071 91	7,876,928 43
Miscellaneous.....	14,104,548 98	12,692,958 25
Total	\$926,901,889 40	\$850,648,981 82
EXPENDITURES :		
Civil and miscellaneous.....	\$84,448,021 56	\$81,236,178 98
War.....	37,666,479 55	36,793,654 11
Navy.....	15,169,650 16	14,961,952 90
Indians.....	6,483,955 42	5,790,501 22
Pensions.....	61,255,950 71	66,950,264 49
Interest on the public debt.....	50,834,954 69	50,587,376 49
Total	\$255,859,012 89	\$256,933,928 19

UNITED STATES, FINANCES OF THE.

State of the Treasury.—The following is a statement of the condition of the public Treasury on December 31, 1885, and December 31, 1886:

ITEMS.	Dec. 31, 1885.	Dec. 31, 1886.
ASSETS:		
Gold coin	\$150,793,980 57	\$187,196,596 81
Gold bullion	72,557,428 91	80,931,421 66
Standard silver dollars	165,718,190 00	188,506,238 00
Silver bullion	3,797,040 84	4,139,376 81
United States notes	41,731,200 11	29,679,525 78
National-bank notes	1,883,593 58	227,065 00
Deposits in national-bank de potaries	12,901,482 83	18,183,922 65
Fractional and minor coin	28,528,275 52	25,792,357 78
National-bank notes in process of redemption	3,508,863 89	2,785,270 02
Miscellaneous items	106,504 56	6,103,207 98
Total	\$511,277,120 06	\$544,094,782 49
LIABILITIES:		
Gold certificates outstanding	\$105,359,601 00	\$97,215,605 00
Silver certificates outstanding	98,179,465 00	117,246,670 00
Currency certificates outstand ing	13,790,000 00	6,510,000 00
Reserve for redemption of United States notes	100,000,000 00	100,000,000 00
Funds for retirement of bank circulation	41,519,776 73	90,509,782 60
Five-per-cent. redemption fund	12,003,701 51	9,593,415 22
Dishurbing officers' balances	20,365,226 58	23,315,596 88
Transfer checks and drafts	3,991,475 21	4,045,217 74
Post-Office Department ac count	3,038,601 21	4,752,084 10
Matured debt and interest	16,910,950 55	20,980,289 64
Miscellaneous items	1,176,173 97	1,978,180 76
Balance	99,342,147 75	67,988,990 55
Total	\$511,277,120 06	\$544,094,782 49

The gold coin and bullion on hand increased from \$253,351,409.48 to \$268,128,018.47, or \$14,776,608.99. The gold certificates actually outstanding decreased \$8,143,996, making an increase in the net gold actually belonging to the Government of \$22,920,604.99. The standard silver dollars on hand increased from \$165,718,190 to \$188,506,238, and the outstanding silver certificates increased from \$93,179,465 to \$117,246,670, or \$24,067,205. The silver dollars not represented by certificates in circulation fell off from \$72,538,725 to \$71,259,568. The United States notes owned by the Treasury in excess of outstanding certificates decreased from \$27,941,200.11 to \$23,169,325.78; and the total assets increased from \$511,277,120.06 to \$544,094,782.49, or a gain of \$32,817,662.43. The aggregate decrease in the paper circulation of the country during the year from the falling off in the issue of gold and silver certificates was \$14,767,845. The total liabilities increased from \$411,934,972.31 to \$476,105,791.94, or \$64,170,819.63, the principal item of increase being in the fund held for redemption of notes of national banks "failed," "in liquidation," and "reducing circulation."

The following statement shows the distribution of the coin and currency obligations of the Government at the close of the fiscal year ending June 30, 1886:

OBLIGATIONS.	In Treasury.	In national banks.	In other banks and individual hands.	Total.
Gold, including bullion	\$229,888,123 91	\$104,530,587 67	\$159,831,288 42	\$496,700,000 00
Gold certificates	55,129,570 00	41,446,430 00	34,597,945 00	181,174,245 00
Silver certificates	27,861,450 00	1,812,290 00	86,303,938 00	115,977,675 00
Silver dollars, including bullion	184,940,104 45	6,757,263 00	2,712,457 00	286,815,548 45
Subsidiary silver	28,904,681 66	2,918,304 82	88,182,018 52	70,000,000 00
Legal-tender notes	41,118,318 79	79,666,788 00	225,905,916 21	346,681,016 00
Legal-tender certificates	250,000 00	19,250,000 00	.....	18,500,000 00
Fractional currency .....	.....	.....	.....	15,330,021 52
Demand and other notes .....	.....	.....	.....	321,160 00

The Public Debt.—The following statement shows the principal and interest of the national debt at the close of the calendar years 1885 and 1886:

CHARACTER OF DEBT.	Dec. 31, 1885.	Dec. 31, 1886.
Bonds at 4 per cent.	\$250,000,000 00	\$250,000,000 00
Bonds at 4 per cent.	737,743,250 00	737,781,850 00
Bonds at 3 per cent.	194,190,500 00	63,399,000 00
Refunding certificates at 4 per cent.	221,400 00	190,100 00
Navy pension fund at 3 per cent.	14,000,000 00	14,000,000 00
Interest accrued on the above loans	11,301,184 34	9,867,855 44
Debt on which interest has ceased	8,447,475 26	8,874,855 26
Interest on matured debt	202,218 11	211,336 84
Demand and U. S. notes	846,738,806 00	846,783,341 00
Currency certificates	14,055,000 00	6,710,000 00
Gold certificates	189,710,080 00	124,701,409 00
Silver certificates	124,843,776 00	124,585,102 00
Fractional currency	6,959,158 77	6,958,702 52
Bonds issued to Pacific Railway Companies	64,623,512 00	64,623,512 00
Interest unpaid thereon	4,229 96	4,229 96
Total debt	\$1,907,540,580 44	\$1,759,141,324 02

\$80,643,200 was so called to answer the requirements of the law relating to the sinking-fund, and \$46,639,900 for the purpose of reducing the public debt by application of a part of the surplus in the Treasury to that object. Of the bonds thus called \$102,269,450 became subject under such calls to redemption prior to Nov. 1, 1886. The remainder, amounting to \$25,013,650, matured under the calls after that date. In addition to the amount subject to payment and cancellation prior to November 1, there were also paid before that day certain of these bonds, with accrued interest thereon, amounting to \$5,072,350, which were anticipated as to their maturity, of which \$2,664,850 had not been called. Thus \$107,341,800 has been actually applied prior to the 1st of November, 1886, to the extinguishment of the bonded and interest-bearing debt, leaving on that day still outstanding the sum of \$1,153,443,112, of which sum \$86,848,700 were represented by uncalled 3-per-cent. bonds. In addition to these there were also outstanding at that date \$10,102,950 of called 3-percents which had not been presented for redemption. These amounts were still further reduced, on December 31,

During the twelve months ending Oct. 31, 1886, 3-per-cent bonds were called for redemption amounting to \$127,283,100, of which

1886, to \$63,899,000 that were uncalled and \$6,723,150 that have been called but not presented for redemption.

The following table shows the changes in the various denominations of United States legal-tender notes in circulation during the fiscal years 1885-'86:

DENOMINATIONS.	June 30, 1885.	June 30, 1886.
One dollar.....	\$24,952,061 80	\$17,603,922 40
Two dollars.....	25,295,069 20	18,204,369 60
Five dollars.....	75,997,805 00	85,629,219 00
Ten dollars.....	61,589,386 00	66,655,661 00
Twenty dollars.....	55,126,509 00	55,078,379 00
Fifty dollars.....	23,459,895 00	23,291,265 00
One hundred dollars.....	32,896,790 00	31,359,700 00
Five hundred dollars.....	16,557,000 00	12,424,000 00
One thousand dollars.....	25,716, 00 00	37,361,500 00
Five thousand dollars.....	100,000 00 00	60,000 00 00
Ten thousand dollars.....	40,000 00 00	10,000 00 00
Total	\$347,681,016 00	\$347,681,016 00
Deduct for unknown denominations destroyed.	1,000,000 00	1,000,000 00
In circulation.....	\$346,681,016 00	\$346,681,016 00

The National Banks.—During the year ending Nov. 1, 1886, 174 national banks, with an aggregate capital of \$21,358,000, to which \$2,900,550 in circulating notes were issued, were organized. Of these banks 5, with \$500,000 capital, were located in the Eastern States; 15, with \$4,000,000 capital, in the Middle States; 27, with \$2,108,000 capital, in the Southern States; 85, with \$11,295,000 capital, in the Western States; 18, with \$2,100,000 capital, in the Pacific States; and 24, with \$1,355,000 capital, in the Territories.

Since the establishment of the national banking system, on Feb. 25, 1863, there have been organized 3,580 national banks. Of these, 456 have gone into voluntary liquidation for the purpose of winding up their affairs; 79 have gone into voluntary liquidation for the purpose of reorganization; 65 are in liquidation by expiration of charter, of which number 38 have been reorganized, and 112 have been placed in the hands of receivers for the purpose of closing up their affairs; leaving the total number in existence 2,863 on Nov. 1, 1886. The corporate existence of 31 national banks expired during the year ending Nov. 1, 1886; 30 of them have been extended under the act of July 12, 1882, and one is in liquidation under section 7 of said act. The corporate existence of one national bank with a capital of \$150,000 will expire during December of this year, and the corporate existence of five national banks, with an aggregate capital of \$1,050,000, will expire during the year 1887. There were eight failures of banks during the year ending Nov. 1, 1886, as against four during the previous year, and in two cases the creditors were paid in full, principal and interest, two banks have paid 50 per cent., one 75 per cent., and one 20 per cent.

Out of the 3,580 national banks organized since February, 1863, only 112, or about 3 per cent., have been placed in the hands of receiv-

ers. Of these 112, 38 have paid their creditors in full, while 20 have besides paid interest, 15 in full, and 5 in part. Of the banks which have been placed in the hands of receivers, 9 had been previously placed in liquidation by their stockholders, but, failing to pay their depositors, receivers were afterward appointed to wind up their affairs; 78 have been finally closed, leaving 34 in process of settlement, of which 9 are virtually closed with the exception of pending litigation, leaving 25 receiverships only in active operation.

Notwithstanding the rapid surrender of bank circulation resulting from the repeated calls for 3-per-cent. bonds during the past year, there is no reason to anticipate an abandonment of the system for many years to come. About \$200,000,000 of the 3-per-cent. bonds were originally taken by the banks as a basis of circulation. The amount of such bonds held on deposit for circulation April 1, 1883, was \$199,000,000, and at that time the aggregate of bonds on deposit for circulation was about \$357,000,000. One year later the amount of 3-per-cent. bonds deposited for circulation had been reduced to \$155,000,000, and the amount of all bonds to \$325,000,000. No great change, either in the aggregate or in the amount of 3-per-cent. bonds deposited, was made between that date and Nov. 1, 1885, when the amount of 3-per-cent. bonds was \$183,000,000 and the amount of all bonds deposited was \$309,000,000. These figures show that the tendency for some years, prior to this year, was to a gradual reduction in the bank circulation, though the slow retirement of 3-percents was to a considerable extent compensated by the substitution of other bonds in the deposits. Another influence which operated to prevent the retention of circulation by many banks was the putting into circulation by the Treasury of paper currency of other kinds and standard silver dollars, and these forms of money have to some extent taken the place of bank-notes formerly circulated. After the 3-percents have all been retired, there will yet remain at least \$160,000,000 of national-bank circulation based on other kinds of bonds. This reduction would be important were it not for the fact that it would be in part compensated by the increase in amount of small silver notes in circulation. Meanwhile there is nothing to indicate a disposition to surrender circulation by those banks which hold on deposit other kinds of bonds, and it is expected that a gradual increase of bank circulation will occur through the establishment of banks in new localities, where especial demands for banking facilities and circulation will render the business profitable.

The following table exhibits the number and amount of national-bank notes of each denomination that have been issued and redeemed since the organization of the system, and the number and amount of those outstanding on Nov. 1, 1886:

UNITED STATES, FINANCES OF THE.

DENOMINATIONS.	NUMBER OF NOTES.			AMOUNT.		
	Issued.	Redeemed.	Outstanding.	Issued.	Redeemed.	Outstanding.
Ones	23,167,677	22,757,987	409,690	\$23,167,677	\$22,757,987	\$409,690 00
Twos	7,747,519	7,639,806	107,713	15,495,088	15,279,612	215,426 00
Fives	97,667,360	81,109,272	16,558,088	488,836,800	405,546,360	\$2,790,440 00
Tens	41,695,970	31,767,278	9,928,692	416,955,700	317,672,780	99,286,920 00
Twenty	12,945,618	9,397,854	3,547,764	258,912,860	187,957,080	70,955,280 00
Fifties	1,815,174	1,451,301	863,573	90,758,700	72,565,050	18,193,650 00
One hundreds	1,942,601	1,055,880	286,671	134,900,100	105,538,000	28,667,100 00
Five hundreds	23,924	23,188	786	11,962,000	11,565,000	393,000 00
One thousands	7,369	7,290	79	7,368,000	7,290,000	79,000 00
Fractions outstanding . . . . .	.....	.....	.....	.....	.....	22,715 60
Total	186,412,612	155,209,256	31,203,856	\$1,447,161,375	\$1,146,170,869	\$301,018,221 60

The following statement shows the condition of the national banks on Dec. 28, 1886, as shown by reports from 2,875 banks then in operation:

RESOURCES.

Loans and discounts	\$1,464,860,246 61
Overdrafts	5,997,434 52
United States bonds to secure circulation	228,184,350 00
United States bonds to secure deposits	21,040,900 00
United States bonds on hand	10,576,200 00
Other stocks, bonds, and mortgages	81,491,000 66
Due from approved reserve agents	142,117,978 28
Due from other national banks	88,271,697 96
Due from State banks and bankers	21,465,427 08
Real estate, furniture, and fixtures	54,768,580 37
Current expenses and taxes paid	10,258,007 79
Premiums paid	15,160,621 67
Checks and other cash items	18,218,973 44
Exchanges for Clearing-House	70,592,126 92
Bills of other banks	26,192,330 00
Fractional currency	447,883 09
Trade-dollars	1,827,364 20
Specie, viz.:	
Gold coin	\$72,855,405 48
Gold Treasury certificates	55,259,260 00
Gold Clearing-House certificates	24,926,000 00
Silver coin, dollars	7,463,152 00
Silver coin, subsidiary	2,789,518 53
Silver Treasury certificates	8,690,225 00

Legal-tender notes	166,988,556 01
United States certificates of deposit for legal-tender notes	67,739,828 00
Five-per-cent redemption fund with Treasurer of the United States	6,195,000 00
Due from Treasurer of the United States other than redemption fund	10,056,128 89
Aggregate	975,876 96

LIABILITIES.

Capital stock paid in	\$500,698,675 00
Surplus fund	159,513,479 21
Other undivided profits	79,298,286 13
National bank notes issued	\$204,883,885 00
Amount on hand	2,805,5,8 00

Amount outstanding	202,078,237 00
State-bank notes outstanding	115,832,00
Dividends unpaid	1,590,345 06
Individual deposits	1,169,716,418 18
United States deposits	13,705,700 78
Deposits of United States disbursing officers	4,276,257 85
Due to other national banks	223,842,279 46
Due to State banks and bankers	91,254,588 23
Notes and bills rediscounted	9,159,345 79
Bills payable	2,444,958 36

Aggregate	\$2,507,753,912 95
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The Coinage.—The total value of gold deposited at the mints and assay-offices during the fiscal year ended June 30, 1886, amounted to \$49,606,534.65, of which amount \$4,696,785.42 consisted of bars of the several institutions redeposited, leaving the net value of the gold deposited \$44,909,749.23, against \$52,894,075.09 in the preceding fiscal year, a fall-

ing off of \$7,984,325.86. Of the deposits of gold at the mints and assay offices for the fiscal year, the sum of \$32,456,493.64 was classified as of domestic production, and \$4,317,068.27 as foreign bullion; \$393,545.28 consisted of United States gold coins remelted, and \$5,673,565.04 of foreign coins. The remainder, \$2,069,077, consisted of jewelers' bars, old plate and jewelry, and miscellaneous old material. The total value of the silver, computed at its coining rate in standard silver dollars, which is the accounting rate at the mints, deposited, purchased, and parted at the mints and assay offices of the United States during the year, amounted to \$37,907,026.36 (32,584,944.61 standard ounces). Of this amount the sum of \$2,422,843.12 consisted of fine and unparted bars of the several institutions redeposited, leaving the net value of the silver deposited, purchased, and parted during the year \$35,494,183.24, against \$36,789,774.92 in the preceding fiscal year, being a falling off in the net deposits of silver of 1,113,399.13 standard ounces of the value of \$1,295,591.68. Of the net value of the silver deposited for bars, parted from gold, and purchased for coinage during the year, namely, \$35,494,183.24, the sum of \$32,454,644.56 was classified as of domestic production, \$1,480,425.43 of foreign bullion, \$279,292.39 United States coins melted, \$812,664.50 of foreign coins, and the remainder, \$467,156.36, of old jewelry and plate.

The coining of gold executed at the mints of the United States amounted during the year to 5,050,814 pieces, of the value of \$34,077,380, against 1,748,158 pieces, valued at \$24,861,123.50 in the preceding year. Of such coinage, \$4,871,680 was in double eagles; \$10,428,470 in eagles; \$18,758,145 in half-eagles; \$303 in three-dollar pieces; \$10,215 in quarter-eagles; and \$8,567 in dollars. The silver coinage during the year amounted to 31,627,157 pieces, of the value of \$30,022,347.95, against 31,699,096 pieces, of the value of \$28,848,959.65, in the preceding fiscal year. Of this amount \$29,838,905 consisted of silver dollars; \$3,052.50 of half-dollars; \$3,626.25 of quarter-dollars; and \$176,764.20 of dimes. In addition to the gold and silver coinage, 1,706,651 minor coins were struck, of the value of \$17,377.65. One million six hundred and ninety-six thousand six hundred and thirteen pieces, of the value of \$16,966.13, consisted of

one-cent bronze coins; 4,519 pieces, of the face value of \$135.57, of three-cent nickel pieces; and 5,519 pieces, of the face value of \$275.95, of five-cent nickel pieces. The cost of the silver used during the year in the coinage of the 29,838,905 standard silver dollars under the compulsory silver-coinage act of 1878 was \$23,448,960.01. There had been coined up to the close of the previous fiscal year 203,882,554 silver dollars, and on the 1st day of December, 1886, the total amount of such coinage was \$247,131,549. At the time of the passage of the law of 1878, directing this coinage, the intrinsic value of the dollars thus coined was ninety-four and one fourth cents each, and on the 31st day of July, 1886, the price of silver reached the lowest stage ever known, so that the intrinsic or bullion price of the standard silver dollar at that date was less than seventy-two cents. The price of silver on the 30th day of November last was such as to make these dollars intrinsically worth seventy-eight cents each. Every fair and legal effort has been made by the Treasury Department to distribute these dollars among the people. The withdrawal of United States Treasury notes of small denominations, and the issuing of small silver certificates, have been resorted to in the endeavor to accomplish this result, in obedience to the will and sentiments of the representatives of the people in Congress. On the 27th day of November, 1886, the people held of these coins, or certificates representing them, the nominal sum of \$166,873,041; and there still remained in the Treasury \$79,464,845 as against \$142,894,055 so in the hands of the people, and 72,865,376 remaining in the Treasury one year ago. The President says, in his last annual message: "I have seen no reason to change the views expressed in my last annual message on the subject of this compulsory coinage; and I again urge its suspension on all the grounds contained in my former recommendation, re-enforced by the significant increase of our gold exportations during the last year, as appears by the comparative statement herewith presented, and for the further reasons that the more this currency is distributed among the people the greater becomes our duty to protect it from disaster; that we now have abundance for all our needs; and that there seems but little propriety in building vaults to store such currency, when the only pretense for its coinage is the necessity of its use by the people as a circulating medium."

Taxation Reform.—The Secretary of the Treasury submitted to Congress at its last session a supplementary report on the collection of duties, together with another from Assistant Secretary Fairchild, embodying replies received from those subordinate bureaus and divisions concerned in the administration of the tariff law, as well as from the chief officers of the four largest ports, in answer to specific inquiries in relation to that subject. These documents embody the opinions of the chief

officers of the ports of Boston, New York, Philadelphia, and Baltimore, at which, out of a total revenue from customs exceeding \$190,000,000 during the last fiscal year, there were collected nearly \$170,000,000. In his consideration of the subject, the Secretary says:

In a matter of so much importance as the levy and collection of about \$190,000,000 as taxes on imported merchandise out of a sum total of \$310,000,000 of annual Federal taxation, I have deemed it due to Congress that all the suggestions made to me by Government officers, in response to my official inquiries, should be laid before the legislative branch of the Government without suppression, or modification of any. The problem of reforming our existing taxes on consumption in that most defective branch of the same—a survival of the war—which consists of the drag-net collection of multifarious duties on more than 4,000 different commodities imported for consumption here, is so environed with conflicting theories, purposes, passions, interests, or partisan hopes, that I ought to fully and frankly exhibit to Congress, which has the power and responsibility of achieving all needed reform, everything in my possession which can illuminate the subject, or tend even remotely to show which of the existing evils can be fairly deemed capable of executive remedy, and which will require legislative treatment.

The Secretary proceeds to consider the impediments in the way of ascertaining the invoice value and the dutiable value of consigned goods on which *ad-valorem* rates are to be levied; and also points out existing abuses in regard to consular verifications and certification of invoices. He next deals with what he calls the "consignment system"—that is to say, "a system whereby enterprising agents of foreign manufactures, or dealers, come hither, solicit and accept orders on samples to deliver their fabrics to buyers in our country at a prearranged price, the duties and all charges of every sort to be paid by the foreign seller." From this system, according to the judgment of a Boston committee that had been asked to examine the subject, results the greater part of the evils of undervaluations, wrong classifications, and other errors.

The Secretary also reiterates his recommendation in favor of reducing with an unsparing hand the taxation entailed upon trade and industry by the existing war tariff. It is his belief that—

Whenever we begin taking off the shackles of war-tariff taxes on raw materials, such increased prosperity will follow to the employers who dread it, and such larger and steadier employment to the wage-earners who need it, by increasing the sales abroad of our own manufactures, and by whipping out foreign competitors in our own markets, that we shall see our income from imported manufactures dwindle so fast as not only to compel the retention of these most fit items of revenue—whisky, tobacco, and beer—but perhaps to drive us back to getting \$10,000,000 of revenue from two cents a pound tax on coffee and half as much from tea . . . These prolonged war-tariff taxes, incompetent and brutal as a scheme of revenue, fatal to the extension of our foreign markets, and disorderly to our domestic trade, have, in the last resort, acted and reacted with most ruinous injury upon our wage-earners. Encumbering with clumsy help a few thousand employers, it has trodden down the millions of wage-earners. It has for twenty-one years denied them even the peaceable fruits of liberty.

The Secretary, in conclusion, insists upon a recasting of all our customs collection laws, in order to adapt them to the growth and changes of commercial methods; but he does not think this can be entered upon until the country comes to a decided conclusion in respect to the future course and method of taxation.

UNIVERSALISTS. The statistical tables of the Universalist Church, as given in the "Universalist Register" for 1887, show the number of parishes to be 945; of families, 38,429; of churches, 695, with 35,550 members; of Sunday-schools, 634, with 53,553 members; of church edifices, 789; value of church property, \$7,403,927.

The funds of the General Convention were reported at the session of that body, in October, to amount in the aggregate to \$170,918, distributed as follows: Murray Centenary fund, \$123,577; Theological Scholarship fund, \$25,002; Church Extension fund, \$8,988; Gunn Ministerial Relief fund, \$10,452; Ada Tibbets Memorial fund, \$7,900. The total increase of the Convention funds during the year had been \$15,245. The receipts of the Woman's Centenary Association had been \$8,090, its permanent fund amounted to \$6,300. It supported a missionary in Scotland, co-operated with the General Convention in sustaining a missionary in Texas, and had published and distributed 68 tracts. The twelve literary and theological institutions of the Church returned 109 professors and teachers, 1,303 students, and property valued at \$2,473,000, seven of them had received legacies during the year amounting in all to \$75,000.

The Universalist General Convention met at Akron, Ohio, in October. The Rev. E. C. Sweetser, D. D., was chosen president. The question of the provision that should be made for increasing the ministry of the Church was discussed, and it was decided that the desired end could be most surely reached by securing the attendance of graduates from Universalist colleges upon the theological institutions of the Church. A Board of Foreign Missions was established. Measures were taken for organizing a Universalist Temperance Association. A Bureau of Sunday-School Superintendents was created. Propositions were submitted, to be reported upon at the next meeting of the Convention, for making the sessions of the body biennial, instead of annual, and for holding, every two years, a Church Congress under the direction of the Board of Trustees.

UTAH. Territorial Government.—The following were the Territorial officers during the year: Governor, Eli H. Murray, succeeded by Caleb W. West; Secretary, Arthur L. Thomas; Treasurer, James Jack; Auditor, Nephi W. Clayton; Superintendent of Public Instruction, L. J. Nuttall. Supreme Court: Chief-Justice, Charles S. Zane; Associate Justices, Orlando W. Powers and Jacob S. Boreman. On the 2d of November John T. Caine, Mormon, was re-elected delegate to Congress, his

vote being 19,605, against 2,810 for the Gentile candidate, and 68 scattering; total, 22,483. Summit County alone gave a Gentile majority. There were no returns from San Juan County.

Schools.—The following is a comparative statement of the condition of the public schools in the years 1884-'85:

ITEMS.	1884.	1885.
School districts.....	327	332
Districts reported	295	301
Teachers :		
Male.....	261	290
Female	881	824
Children of school age:		
Male.....	25,087	25,885
Female	28,852	24,808
Per cent. of school population enrolled.....	60	59.2
Average daily attendance	19,073	18,678

On Feb. 28, 1850, an act was passed by the provisional government of the State of Deseret incorporating the University of the State of Deseret, and this action was approved by the Legislative Assembly of the Territory of Utah on Oct. 4, 1851. The act provided for the location of the university at Salt Lake City. It had but a nominal existence until March 8, 1869, when it was organized. The Legislative Assembly, at the session of 1876, provided for an annual appropriation of \$5,000, in return for which forty pupils, selected from the different counties of the Territory, were to be educated free in the normal department. In 1880 an additional appropriation of \$20,000 was made to aid in the erection of a building, the cost of which was estimated at \$75,000. Aid was also secured from other sources. The present liabilities are \$41,673.43, and it is estimated that \$23,326.57 will be required to complete the building. In 1884, \$4,000 was appropriated for a department for the education of deaf-mutes. In 1884 a class of fifteen, and in 1885 a class of eighteen, deaf-mutes was enrolled. Of university students, in 1884, 230 males and 138 females were in attendance, over 40 being in the normal department. In 1885 214 males and 139 females were in attendance, 62 in the normal department.

In connection with the work of educating the youth of the Territory is the system of mission-schools established by different Christian denominations. The following table shows the number of schools, etc.:

DENOMINATION.	Schools.	Teachers.	Pupils.	Property.
Episcopal.....	5	29	769	\$42,000
Catholic.....	7	40	800	86,000
Baptist.....	1	8	140	2,000
Congregational.....	25	45	1,900	80,000
Methodist.....	14	27	837	80,000
Presbyterian.....	31	62	1,890	60,500
Total	83	206	6,836	\$350,500

Of the 837 enrolled pupils in the Methodist schools, 247 were from Mormon families, and 279 from apostate Mormon families.

Insane Asylum.—This institution, at Provo,

affords a comfortable home for the insane. More than \$100,000 has been expended upon the grounds and buildings. The number of patients under treatment in October was, males 35, females 34, at an average daily expense per capita during September of 62½ cents. The average daily cost per capita, from Jan. 1 to Sept. 30, 1886, was 71 cents.

Penitentiary.—During the month of August, 1886, the number of prisoners confined was 134. The work of completing the Penitentiary, under the appropriation made by Congress for that purpose, is about to be undertaken.

Industrial Home.—At the last session of Congress an appropriation of \$40,000 was made to aid in the establishment of an industrial home in the Territory, to provide employment and means of support for dependent women, and the children of such women, with a view to aid in the suppression of polygamy.

Manufactures.—The quantity of manufactured goods produced during the year indicates a gratifying prosperity. One of the growing industries of the Territory is the manufacture of salt. The water of Great Salt Lake is drained into reservoirs, and in a few days it evaporates, leaving the crystals of salt ready to be gathered. For the past year it is estimated that 15,000 tons were produced, worth \$8 a ton. Another of the growing industries of the Territory is the manufacture of lager-beer. In 1885 the total number of breweries in Utah was 14. The total product of malt liquor during the fiscal year ending June 30, 1886, was 24,698 barrels.

Mining.—Notwithstanding the depression in the price of silver, none of the mines in the Territory were compelled to stop operations, although in some districts it resulted in a reduction of miners' wages. The mineral product of the Territory, for the years 1884-85, was:

1884.

4,340,987 pounds refined lead.....	\$169,484 54
56,028,598 pounds unrefined lead.....	950,418 12
5,669,488 ounces fine silver.....	6,128,047 04
5,830 ounces fine gold.....	110,600 00
63,372 pounds copper.....	6,837 20

Total export value..... \$7,389,836 90

1885.

54,818,776 pounds unrefined lead.....	\$1,222,172 46
5,972,689 ounces fine silver.....	6,211,596 56
8,903 ounces fine gold.....	178,060 00

Total export value..... \$7,611,829 02

The output for the first six months of the present year was about the same as that of 1885 for a similar period.

Cattle, Sheep, and Wool.—The total of horned stock in the Territory is estimated at 450,000, and of sheep 1,100,000. The wool product for the past season is estimated at 7,000,000 pounds, as compared with 6,250,000 pounds in 1884.

Polygamy.—On this important subject the Governor reports:

The all-absorbing question in this Territory is the attitude of defiance maintained by the Mormon people to the law of Congress for the suppression of polygamy, known as the "Edmunds law." In all questions affecting the Mormon Church and people, the polygamous and monogamous Mormons make common cause. They maintain that the law is infamous, an interference with and a denial to them of that religious freedom guaranteed to all by the Constitution; their right and religious duty to continue in violation of the law their polygamous relations; and they deny the authority of Congress to interpose any restrictions as to the marital relation; that they are prepared to, and will if required of them, sacrifice their personal comfort, their property, suffer indefinite imprisonment, and surrender life itself, rather than yield and promise obedience to the law and forego the privileges they claim. In 1884 a determined move was inaugurated for the enforcement of the law against polygamy, and since that time the Territorial officers of Federal appointment charged with the duty have been vigilant and diligent in their efforts to that end. It has been the custom of the court to suspend and allow the convicted person to go free upon his promise that he will obey the laws. Of the number convicted up to June 30, 1886, but seven have given the promise. The following statement is made of the convictions obtained in the courts in polygamy and unlawful cohabitation cases: From July 1, 1884, to June 30, 1885, 9 convictions were had, 3 for polygamy and 6 for unlawful cohabitation. From July 1, 1885, to June 30, 1886, there were 84 convictions, 3 for polygamy and 8 for unlawful cohabitation.

The immigration from and including the year 1881 to the present time amounts to 11,950 souls, distributed through the years as follows: 1881, 2,233; 1882, 2,693; 1883, 2,462; 1884, 1,799; 1885, 1,549; 1886, 1,214; total, 11,950.

V

VERMONT. State Government.—The following were the State officers at the beginning of the year: Governor, Samuel E. Pingree, Republican; Lieutenant-Governor, Ebenezer J. Ormsbee; Secretary of State, Charles W. Porter; Treasurer, William H. Du Bois; Auditor, E. Henry Powell; Inspector of Finance, Carroll S. Page; Commissioner of Taxes, W. P. Dillingham; Railroad Commissioner, Thomas O. Seaver; Superintendent of Education, Justus Dartt. Supreme Court: Chief Judge, Homer E. Royce; Associate Judges, Jonathan Ross, H. Henry Powers, Wheelock G. Veazey, Russell S. Taft, John W. Rowell, and William H.

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Walker. In the autumn these were succeeded by the officers chosen at the September election, or by the Legislature.

Political.—The Republican State Convention met at Montpelier on June 16, and nominated the following ticket: For Governor, Ebenezer J. Ormsbee; Lieutenant-Governor, Levi K. Fuller; Treasurer, William H. Du Bois; Auditor of Accounts, E. Henry Powell; Secretary of State, Charles W. Porter. Among the resolutions adopted were the following:

That whatever may be the case elsewhere, the course of the national Administration in reference to the disposal of Federal offices in this State in com-

mitting the appointments to party bosses, in superseding faithful officers not justly chargeable with offensive partisanship by active and offensive Democratic partisans, and in removing honest, experienced and respected officers to make places for saloon-keepers and Democratic strikers, has been an absolute burlesque of civil-service reform, and deserves the condemnation of all who desire a clean, efficient, and trustworthy public service.

That we deplore the multiform evils of intemperance; we reaffirm the position of the Republican party in this State upon that question, and declare in our opinion the prohibition of the liquor-traffic, as expressed in our statutes, etc., be and should remain the settled policy of the State.

The Democratic State Convention met in the same town on July 22, and nominated Stephen C. Shurtliff for Governor, P. M. Meldon for Lieutenant-Governor, Thomas H. Chubb for Treasurer, Wallace W. Rider for Secretary of State, and J. A. Wilder for Auditor. The following resolutions, among others, were adopted:

We demand the protection of the dairy and other interests of the State by the enactment of such laws as will prevent the adulteration of food and the sale of oleomargarine or any spurious compound as butter. We favor such legislation as shall control the traffic in intoxicating liquors and increase the revenue rather than the burden of taxation, and, though opposed to sumptuary laws, we demand the enforcement of existing laws until repealed. We denounce the Republican party of Vermont for its shameless hypocrisy and demagogism in enacting liquor laws they do not intend to enforce, and while in power will not enforce, and in embodying prohibitory resolutions in their platform simply for the purpose of deceiving those who are honestly prohibitionists when they do not mean to carry them into effect.

The Prohibition State Convention was held in Burlington on July 21. The following ticket was nominated: For Governor, H. M. Seeley, of Middlebury; Lieutenant-Governor, W. L. Pearl, of St. Johnsbury; Treasurer, C. W. Wyman, of Brattleboro'; Secretary of State, George L. Story, of St. Albans Bay; Auditor of Accounts, Levi S. Lewis, of Bennington.

The Greenback Labor Party held a State Convention at Essex Junction on July 28, and made nominations as follows: For Governor, T. B. Smith, of Stowe; Lieutenant-Governor, A. F. Brown, of Rutland; Treasurer, Fletcher Tarbell, of Swanton; Secretary of State, A. J. Merrill, of St. Albans; Auditor, E. B. Sawyer, of Hyde Park.

The election on September 7 resulted in the choice of the Republican candidates. The following is the vote for Governor: Republican, 37,709; Democratic, 17,187; Prohibition, 1,541; Greenback, 644; scattering, 18. The Legislature is constituted as follows: Senate, 29 Republicans and 1 Democrat; House, 206 Republicans, 29 Democrats, and 4 Independents of different shades. Two Republican members of Congress were elected.

Legislative Session.—The Legislature met on October 6, and adjourned on November 24. Among the more important acts of the session are the following:

The creation of a railroad commission; incorporation of the towns of Proctor and West Rutland, taken

from Rutland; abolishing the office of highway surveyor and making the highway tax at least 15 per cent. to be collected in money; raising the salaries of judges of the Supreme Court from \$2,500 to \$3,000; making \$10 the lowest limit for trustee process; appropriations of \$10,000 for a soldiers' home, \$9,000 for monuments and grounds on the battle-field of Gettysburg, \$2,500 for improved arms, etc., for the National Guard, and \$5,000 for repairs in the State Prison; giving justices of the peace authority to compel intoxicated persons to make disclosure; providing imprisonment on third conviction for intoxication; prohibiting judges of the Supreme Court from acting as auditors and referees; prohibiting proprietors and keepers of hotels, restaurants, etc., from furnishing their patrons with imitation butter, unless they placard "oleomargarine sold here" in the dining or lunch rooms; providing that wife or minor child of a person confined in jail for intoxication may collect \$2 a day from parties selling the liquor, or owning the buildings in which the liquor was sold, to such person; establishing a State agricultural experiment station; appropriating \$10,000 for Bennington battle monument; and establishing a State Board of Health.

On October 19 George F. Edmunds, Republican, was re-elected United States Senator by a vote of 29 to 1 in the Senate, and 198 to 36 in the House. On the 20th the Judges of the Supreme Court were re-elected in joint session of the two houses. On November 4 Justus Dartt was, in joint session, re-elected Superintendent of Education. On the 23d the Governor appointed, as members of the newly created Railroad Commission, ex-Gov. Samuel E. Pingree, of Hartford; Col. T. C. Fletcher, of St. Johnsbury; and Henry L. Clark, of Castleton.

Finances.—From the report of the Auditor we find the sum of the orders issued from his office for the biennial term of 1884-'86 to be \$639,102.91. At the close of the fiscal year, July 31, 1886, the State liabilities were as follow, to wit:

Due towns, United States surplus fund.....	\$18,897 62
Due soldiers, unpaid balances.....	8,557 46
Due Agricultural College fund (represented by State bonds falling due June 1, 1890, interest payable semi-annually).....	135,500 00
Balance due of appropriation for State Library building.....	22,706 55
Balance due for construction of North Hero and Alburgh Bridge, under appropriation of 1884.....	19,062 50

Total..... \$199,224 18

And the resources are:

Cash on hand and in banks.....	\$160,974 97
Estimated amount tax from corporations for 1886.....	200,000 00
Estimated proceeds from sale of balance of Huntington fund securities.....	15,000 00

Total..... \$375,974 97

The Tax Commissioner reports that the taxes assessed under the corporation tax law in 1884 amounted to \$205,221.76, and in 1885, \$200,685.70; and from the report of the Treasurer it appears, of the taxes assessed in 1884 there was paid into the treasury \$205,225.33, and of those assessed in 1885 there was paid \$200,685.70. Of the amount for 1885, \$1,401.08 was paid by express companies, \$1,100.57 by telephone companies, \$1,407.97 by steamboat companies, \$5,625.84 by the National Car Company, \$87,445.99 by railroads, \$67,936.73 by

savings-banks, \$14,992.22 by trust companies, \$5,893.63 by home insurance companies, \$6,855.98 by foreign insurance companies, and \$7,514.05 by foreign life-insurance companies. The largest amount of tax was received from the Central Vermont railroad—\$50,133.69. Of the Huntington fund, \$195,728.76 has been converted into cash securities, leaving stocks of the face value of \$24,554 to be realized upon. The estimated cash value of these is \$15,000, and when disposed of the total proceeds from the securities belonging to the fund will be \$210,728.76. There are twenty-six savings-banks and trust companies in the State, exclusive of the St. Albans Trust Company, which is in the hands of a receiver. The total assets of these institutions are \$15,375,271.75. Their liabilities are to depositors, \$14,253,863.47; to stockholders, \$394,000; aggregating, \$14,649,963.47; leaving \$725,908.28.

Public Schools.—Statistics of the schools for the year ending March 31 are given below:

Public schools.....	2,557
Average number of days of school.....	136
Pupils enrolled.....	71,667
Average daily attendance.....	46,625
Male teachers.....	591
Female teachers.....	8,797
Average wages per week of male teachers.....	\$8 50
Average wages per week of female teachers.....	\$5 50
Total revenue for school purposes.....	\$621,370 19
Total expenditures for school purposes.....	\$583,127 67

Probably 20 per cent. of the children of school age are not enrolled in the public schools. The law submitting the question of the adoption of the town system of schools to a vote of the people at the annual town meetings in 1885 and 1886, was acted on by most of the towns. Sixteen towns only voted to adopt the town system; all others that voted on the question voted against it; seventeen towns had previously adopted it, and the town of Norton organized with it.

Penal and Reformatory Institutions.—The reports of the directors and superintendents of the State Prison and House of Correction, and of the trustees of the Vermont Reform School, show that these institutions have been conducted in a satisfactory manner. The following data are presented as indicating the relative number of inmates in these institutions from and including 1882:

INSTITUTION.	1882.	1884.	1886.
State Prison.....	90	89	88
House of Correction.....	45	61	72
Reform School.....	86	84	83

The net ordinary expenses of these institutions for the same period are as follow:

INSTITUTION.	1882.	1884.	1886.
State Prison.....	\$21,632 65	\$17,461 90	\$11,908 50
House of Correction.....	19,193 15	16,791 09	19,510 24
Reform School.....	25,764 42	22,589 64	24,201 96

The dependent classes are chiefly provided for in institutions of other States.

Insane.—The number of inmates in the asylum at Brattleboro', Aug. 1, 1884, was 437;

Aug. 1, 1886, 450; admitted during the biennial term, 184; discharged during the biennial term, 171. Of those now in the asylum, 90 per cent. are regarded as incurable.

VIRGINIA. State Government.—The following were the State officers during the year: Governor, Fitzhugh Lee, Democrat; Lieutenant-Governor, John G. Massey; Attorney-General, Rufus A. Agres; Secretary of State, Henry W. Flounoy; Treasurer, A. G. Harman; 1st Auditor, Morton Marye; 2d Auditor, Frank G. Ruffin; Superintendent of Public Instruction, John L. Buchanan; Commissioner of Agriculture, Randolph Harrison; Superintendent of Land-Office, Joseph A. Wingfield; Railroad Commissioner, H. G. Moffett. Court of Appeals: L. L. Lewis, B. W. Lacy, R. A. Richardson, T. T. Fauntleroy and D. A. Hinton.

Legislative Session.—The Legislature, which was in session at the beginning of the year, adjourned on March 5. Among the acts passed were the following:

To establish an agricultural experimental station at the Virginia Agricultural and Mechanical College at Blacksburg.

To amend and re-enact section 1 of an act to pay to the public free schools the money set apart by the Constitution and laws for their benefit.

Prescribing a penalty against defaulting treasurers and other collecting officers.

To provide that all corporations hereafter chartered in this State shall pay their taxes in money, or forfeit their charters.

To provide for the erection of additional buildings for the State Female Normal School.

To amend the law respecting the protection of wild game.

To incorporate the Virginia Pharmaceutical Association.

To give the consent of the Commonwealth to the purchase or acquisition of real estate by the United States Government in the city of Norfolk for a site for a public building for the accommodation of the United States court-rooms, post-office, and other offices.

To amend the law in relation to the manner of choosing registrars and judges of election for the several counties and cities of the Commonwealth.

To define and punish barratry.

To incorporate the Henderson, Roanoke, and Virginia Railroad.

To incorporate the Virginia Mineral Belt Railroad Company.

To incorporate the Lynchburg and Southwest Railroad Company.

To incorporate the Rockbridge Savings-Bank.

To incorporate the Virginia Boom and Log Company.

To incorporate the Richmond and Alleghany Aid Association.

To amend sections 4, 7, and 15 of an act approved March 19, 1884, entitled "An act to provide for the sale of lands delinquent for taxes and county levies," and to repeal section 13 of said act.

To incorporate the Warm Springs Valley Railroad Company.

To incorporate the Mineral Springs Railroad Company.

To allow persons charged with crime to testify in their own behalf.

To incorporate the Morotock Manufacturing Company.

To provide for the appointment of a commission to locate and establish the dividing line between this State and the State of North Carolina.

Providing that in the trial of any issue involving the genuineness of a coupon appearing or purporting

to have been cut from any bond authorized by law to be issued by the State of Virginia, or by any city, county, or corporation, the defendant may demand the production of the bond; and thereupon it shall be the duty of the plaintiff to produce such bond, with proof that the coupon was actually cut therefrom.

Authorizing the employment of penitentiary convicts on county roads and works of internal improvement, including railroads.

A local-option act was passed.

Penitentiary.—There are usually on the books of the Penitentiary from 1,000 to 1,025 prisoners. Of these 500 men and 68 women were in the spring employed in the shoe-shop under contract; in the tobacco-factory, under contract, 95 men and boys were employed. The State receives on an average about 40 cents day for these prisoners. About 150 men were hired to the South Atlantic and Ohio Railroad, and at work near Bristol. The State guards, feeds, clothes, and doctors these convicts free of expense to the company, provided the *per capita* does not exceed what the same would be in the Penitentiary—say, 25½ cents a day.

Schools.—The subject of free text-books was much discussed in the Legislature, but no act was passed. By the school census of 1885, there were 609,116 children of school age, of whom 303,343 were enrolled. The amount appropriated and paid for building the Virginia Normal and Collegiate Institute at Petersburg, for colored people, is \$138,674.04. For its support \$20,000 annually appropriated.

Finances.—The estimated receipts of the State government from all sources for 1886 amount to \$2,700,000; the expenditures of the government, ordinary and extraordinary, for the year aggregate \$2,267,556.36, not including the interest on the unfunded portion of the public debt as recognized by the Riddleberger settlement, which would amount to \$350,000 additional, nor the amount required by the Constitution to establish a sinking-fund for the liquidation of that debt.

The amount necessary for the ordinary expenses of the government is stated at \$1,440,656.98. The following is a statement of the public debt of Virginia under the Riddleberger bill to Jan. 30, 1886:

Surrender to Dec. 31, 1885.....	\$8,129,195	87
Surrender during January, 1886, including \$3,198 tax-receivable coupons.....	131,855	81
Total surrender.....		<u>\$8,261,051 68</u>

NEW ISSUE.

In new 8-per-cent. Virginia bonds to Dec. 31, 1885.....	\$5,354,688	58
New issue during January, 1886.....	64,159	80
Total new issue to date.....		<u>\$5,418,848 38</u>

Amount of tax-receivable coupons paid, or judgment under acts of Jan. 14 and 26, 1882, including \$10,497 paid during the month of January, 1886.....		<u>\$277,946 00</u>
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In February the Governor submitted a message to the Legislature in view of the decisions of the United States Supreme Court in the coupon cases, in which he reviews the history of the debt and the financial condition of the State. (See COUPON CASES, in "Annual Cyclopaedia" for 1885.)

Political.—On November 2, ten Congressmen were chosen. There were Democratic candidates in each district. In those districts in which the Republicans had no candidates of their own, they supported independent candidates. Democrats were elected in the Third, Seventh, and Eighth Districts, a Labor candidate in the Sixth, and Republicans in the other six. In 1884 only two Republican Congressmen were chosen, in the 2d and 4th districts. The total Democratic vote this year was 102,490; opposition, 123,429. On April 26 an election was held in Richmond, Manchester, and Lynchburg, under the local-option act. All three places voted for license. The vote in Richmond was 8,941 for license, and 3,260 against.

W

WASHINGTON TERRITORY. Territorial Government.—The following were the Territorial officers during the year: Governor, Watson C. Squire; Secretary, N. H. Owings; Auditor, T. M. Reed; Treasurer, William McMicken; Superintendent of Public Instruction, R. C. Kerr. Supreme Court: Chief-Judge, R. S. Greene; Associate Justices, John P. Hoyt, A. R. Langford, and George Turner.

Anti-Chinese Disturbances.—Violent attempts to drive out the Chinese, in some cases resulting in murder, occurred in 1885, and were renewed in 1886. In Squak Valley three were murdered and three wounded, and the murderers were not punished. At Coal Creek their quarters were burned. The greater part of the Chinamen engaged in the mine there had been at work for three years. An "Anti-Chinese

Congress" was held in Seattle, and a large public meeting in Tacoma. There were torch-light processions, with anti-Chinese mottoes, and committees appointed to organize the movement for expulsion of all Chinese from the Territory.

On Nov. 3, 1885, at 9.30 a.m., a short blast of whistles of the car-shops and iron-foundry called together several hundred men at the foot of Pacific Avenue, in Tacoma, who formed themselves into line, and first marched to a Chinese house. They there notified the Chinese to pack up and prepare to leave the town that day. Two or three men were detailed and left at this house to assist in packing the goods of the Chinese, and in the removal of persons and property. From this point the organized body of men marched to each Chi-

nese house in the city, leaving squads of men for the same purpose at each place where the Chinese were quartered. The Chinese were conducted on foot outside of the city to Lake View Station, eight miles from Tacoma. Their personal effects were carried in wagons furnished by those who expelled them. A large number of the Chinese were taken from Lake View on the freight-train which passed there about three o'clock on the morning of November 4. The rest of them left on the passenger-train about 7.30 that morning. Both of these trains were going to Portland.

On November 6 a large number of Chinese houses on piles called a wharf, which had been built by Chinese upon ground leased from the Northern Pacific Railroad Company, were destroyed by fire. These houses consisted of Chinese stores, dwellings, and a joss-house. "By way of vindicating the law," says the Governor, under date of July 17, 1886, "indictments have been found against twenty-seven persons, charged with conspiracy, and they are under bonds awaiting trial."

The biennial session of the Legislature adjourned on Feb. 4, 1886. The attempted forcible removal of the Chinese from several places followed the next week. The removal was effected at Sumner, Puyallup, Carbonado, and Snohomish. At Olympia it was successfully resisted by law-abiding citizens. On February 7 and 8 a mob, beyond the control of the local authorities, attempted the removal of the Chinese from Seattle. The Governor proclaimed martial law, and called out the militia. He also called on the President, who ordered troops to the scene of disturbance. Quiet was speedily restored, but the work of intimidation had been done. On the 8th, 198 Chinese set out for San Francisco by a steamer, which could not take 62 more whose passages were paid. During the disturbance a conflict occurred between the armed citizens and the mob, in which five persons were wounded.

Resources and Development.—The population of the Territory is estimated by the Governor at 210,000. This political division comprises an area of 69,994 square miles, or nearly one and a half times the area of the State of New York. Of this area 3,114 square miles are water, most of which is within the limits of Puget Sound, leaving 66,880 square miles of land surface, of which about 20,000,000 acres are in timber-lands, 5,000,000 acres rich alluvial bottom-lands, and 10,000,000 acres are prairies and plains. The prairies and plains are mostly in the eastern part of the Territory, and are adapted to the cultivation of wheat, barley, and other cereals, and all the fruits and vegetables known to the climates of Ohio and Pennsylvania. Nearly 400,000 tons of wheat were shipped from this region of the Territory to Pacific tide-water during the period covered by the Governor's report. The western portion of the Territory comprises what is regarded as the largest body of fine timber

known to exist in the world, and, by reason of the numerous streams flowing into Puget Sound (which is itself a vast harbor, having an extent of 1,594 miles of shore-line), the greatest facilities exist for getting out and shipping this timber; and numerous large mills are in operation.

Hops.—Hop-culture has been conducted in the vicinity of Puget Sound on an extensive scale. Instances are common of an average yield of over 2,000 pounds an acre, for ten or twelve successive years. Some growers claim to have raised over 3,500 pounds to the acre.

Oats and Wheat.—Enormous crops of oats are raised on the tide-lands of Puget Sound, of which about 30,000 acres have been diked and reclaimed. Instances are common of 100 bushels to the acre. Very little wheat is raised in the western portion of the Territory; but in several counties in the eastern portion the average crop is over 25 bushels an acre.

Coal.—The supply of coal for the Pacific coast is mainly drawn from Washington Territory and British Columbia. Over 1,000,000 tons have been taken from New Castle mine, near Seattle, within the past seven years. Mines thus far largely developed are at New Castle, Renton, Talbot, Cedar Mountain, Black Diamond, Franklin, Tacoma, South Prairie, Carbon Hill, and Bellingham Bay. The bituminous coals of this region are rich in carbon and make a strong coke.

Iron.—Large deposits of rich magnetic iron-ore, lying in the Snoqualmie Pass, near the summit of the Cascade mountains, have been recently tested by Eastern steel manufacturers, and arrangements are reported to have been made for transporting this ore to tide-water and the manufacture of steel therefrom. Various rich deposits of hematite iron-ore have been found in the same vicinity. The latter ores assay 65 per cent. pure metallic iron. Rich deposits of iron are also found in Skagit County and Jefferson County, both bordering on the sound. An abundance of lime is found on the islands of Puget Sound.

Railroads.—In addition to steamship lines from San Francisco to Portland and Puget Sound, there are the Oregon Short Line, connecting westward by way of the Union Pacific Railroad to Portland; the Canadian Pacific Railroad, terminating at Port Moody, on Burrard's Inlet; and the Northern Pacific Railroad line, which traverses the eastern portion of the Territory, and makes its connections with the western portion by way of the Oregon Railway and Navigation Company's line from Wallula to Portland. The Spokane and Palouse Railway, from Marshall Junction to Belmont, 43 miles, has been built during the past twelve months. The Oregon Railway and Navigation Company's lines tap a large area in the southeastern portion of the Territory, and during the year ending June 30, there were built 27.8 miles of railroad from Colfax to Moscow, and 29.5 miles between Starbuck

and Pomeroy, making a total of 573 miles constructed during the year. The Columbia and Puget Sound Railroad Company (narrow gauge), a corporation auxiliary to the Oregon Improvement Company, has in operation 446 miles of line. The line from Seattle to Franklin, 23·6 miles, was completed in January, 1885. The Puget Sound Shore Railroad Company operates a standard-gauge road from Seattle to Stuck Junction, 23·5 miles. The Olympia and Chehalis Valley Railroad (narrow-gauge), about fifteen miles in length, connects Olympia, on Puget Sound, with the Northern Pacific Railroad at Tenino.

Educational and Reformatory.—The people of the Territory have contributed for common-school purposes about \$300,000 per annum by direct taxation. At the last session of the Legislature the following appropriations were made: \$100,000 for the erection of a new Hospital for the Insane at Steilacoom; \$60,000, in addition to the \$17,000 previously raised, for the erection of a new Penitentiary building at Walla Walla; \$8,000 for the Deaf-Mute Asylum at Vaneouver, and \$10,000 for the support of the Territorial University at Seattle, which is mainly supported by tuition fees.

Political.—The Republican Territorial Convention met at Tacoma on Sept. 8, and nominated C. M. Bradshaw for delegate to Congress. The Democratic Territorial Convention in August nominated Charles S. Voorhees for re-election as delegate to Congress. W. A. Newell was the Labor candidate. On November 2 the Democrats were successful. The vote was: Democratic, 23,272; Republican, 21,080; Labor, 2,875. There is a Republican majority of two in the Legislature on joint ballot.

WEST VIRGINIA. State Government.—The following were the State officers during the year: Governor, E. Willis Wilson, Democrat; Secretary of State, Henry S. Walker; Treasurer, William T. Thompson; Auditor, Patrick F. Duffy; Superintendent of Free Schools, Benjamin S. Morgan; Attorney-General, Alfred Caldwell; Inspector of Mines, H. J. Tucker. Supreme Court of Appeals: President, Okey Johnson; Judges, Samuel Woods, Adam C. Snyder, and Thomas C. Green. On Nov. 2 a Republican was elected to Congress from the First District by a plurality of 827; Democrats were chosen in the Second, Third, and Fourth Districts by pluralities of 90, 895, and 747, respectively. The Legislature of 1887 consists of 14 Democrats and 12 Republicans in the Senate, and 36 Democrats and 29 Republicans in the House.

Finances.—The receipts at the treasury for the fiscal year ending Sept. 30, 1885, were \$739,498.89; the balance on hand at the end of the preceding year was \$222,698.74; making a total of \$1,012,197.63. The disbursements during the same period were \$832,016.43; leaving a balance of \$180,181.20.

During 1885 and 1886 it was necessary for the State to borrow \$179,000, \$59,000 of which

was borrowed from the Board of the School fund. Of these amounts the sum of \$120,000 with interest, amounting in the aggregate to \$125,040.86, has been paid, leaving \$59,000.

The Legislature at its last session appropriated for 1885 and 1886, \$120,000 more than the estimated receipts, which, together with the fact that \$130,000 of the revenues of 1885 were used in paying former obligations, accounts for the large amount borrowed.

The total assessed value of property in 1885 was \$166,670,405; in 1886, \$159,514,752.

Education.—In 1865 the irreducible school fund amounted to \$106,122.78; in 1886, to \$570,473.18.

The State has expended for educational purposes from 1865 to 1886, both inclusive, \$14,565,777.48. There are six normal schools or departments, as follow: Marshall College, Fairmont Normal School, West Liberty Normal School, Concord Normal School, Shepherd College, and Glenville Normal School.

The report of the Board of Regents gives evidence that the State University is in better condition than at any period since its foundation. At the date of the last report the total enrollment was 96; for the year ending June, 1885, it was 107; and for the year ending June, 1886, it was 136. At the date of the report for the present year, the enrollment had reached a total of 149, being the largest attendance at the time of the year since the university was established.

Deaf, Dumb, and Blind.—The health of the inmates of the institution for the two years ending Sept. 30, 1886, has been unusually good, and there has been an entire absence of epidemics and protracted cases of disease. Only about one third of the deaf-mutes and blind in the State, Jan. 1, 1884, under twenty and over eight years of age, have as yet received the benefits for which the institution was founded. The full capacity of the present buildings is 100 pupils. There are now present 97.

Insane.—The greatest number of patients in the hospital during the year ending Sept. 30, 1886, was 688; lowest, 673; Sept. 30, 676; daily average, 680; cost per capita per week, \$2.07 $\frac{7}{8}$. The superintendent expected the new building to be finished by Jan. 1, 1887. It will accommodate 150 patients.

Coal.—The year 1886 was eventful in coal-mining in the State. Several large strikes occurred, and the explosion of fire-damp in the Mountain Brook Shaft mine at Newburg, in Preston County, January 21, was attended with greater fatality than any other accident that has ever taken place in mining in the State.

The estimate of coal and coke production for 1886 is: Number of mines reported, 77; not reported, 35; production in reported mines, 2,625,461 tons; estimate for mines not reported, 587,632 tons; total, 3,213,093; number of coke ovens, 1,154; production of coke, 228,623 tons.

Boundary.—Under chapter 68, West Virginia

acts of 1869, and a similar statute of Pennsylvania, providing for the appointment of commissioners to examine as to the true location of the monuments that mark the boundary-line between the two States, and to replace any monuments that had become dilapidated or removed, the commission have prepared and filed in the Secretary of State's office a joint, full, and final report of their proceedings, accompanied by maps and drafts. This completes the work, and the settlement of the boundary-line.

WISCONSIN. State Government.—The following were the State officers during the year: Governor, Jeremiah M. Rusk, Republican; Lieutenant-Governor, Samuel S. Fifield; Secretary of State, Ernst G. Timme; Treasurer, Edward C. McFetridge; Attorney-General, Leander F. Frisby; Superintendent of Public Schools, Robert Graham; Railroad Commissioner, Nils P. Hangen; Commissioner of Insurance, Philip L. Spooner, Jr.; Commissioner of Labor Statistics, Frank A. Flower. Supreme Court: Chief-Justice, Orsamus Cole; Associates, William T. Lyon, David Taylor, Harlow S. Orton, and John B. Cassoday.

Finances.—The biennial report of the State Treasurer for the years beginning Sept. 30, 1884, and closing Sept. 30, 1886, shows total receipts, \$2,035,754.33 and \$3,176,665.83, respectively; and the total disbursements, \$2,407,848.10 and \$3,148,816.81, respectively. Balance in treasury Sept. 30, 1886, \$736,720.24. No tax has been levied upon the counties for the past three years for defraying the expenses of the State government. In the previous two years a tax was levied and collected from the several counties amounting to \$609,664.43 for State purposes.

The Governor reports that all of the account known as the war-tax levied against Wisconsin, amounting to \$519,688.67, has been paid, and that the United States owes, upon the settlement, to the State of Wisconsin \$8,409.43, and some of the old claims are still pending.

The bonded debt of the State, created in 1861-'63, for the purpose of carrying on the war for the maintenance of the Union, has now all been paid or converted into certificates of indebtedness to the trust funds, except \$1,000, which falls due July 1, 1888. The property valuation of the State, shown by the State Board of Assessment for 1886 is:

Total of personal property.....	\$114,922,900
City and village lots.....	110,564,625
Lands.....	271,019,627
Total.....	\$496,507,152

Charitable and Penal Institutions.—The total amount expended for these during the biennial term ending Sept. 30, 1886, was \$735,008.99. Of the amount appropriated two years ago for the maintenance and support of the six charitable and penal institutions, \$58,000 remained unexpended. During the two years ending last September, the total number of persons

cared for in all the State institutions was 4,076, against 3,721 for the previous biennial term.

The State Prison had 443 convicts in 1885, and 456 in 1886. The total expense of the prison for 1885 was \$54,944.03, and for 1886, \$62,163.40—the increase being caused by substantial improvements and the establishment of a hospital. The receipts from convict-labor were \$49,386.57 in 1885, and \$50,507.47 in 1886, so that the net cost to the State for the past two years was only \$17,213.39.

The following is a statement of the insane in hospitals and asylums, December 31:

State Hospital.....	584
Northern Hospital.....	665
Milwaukee Asylum.....	827
Chronic asylums.....	971
Total.....	2,497

Number in other places:	
Poor houses.....	103
Jails.....	14
Boarded out.....	83
Total.....	150

Railroads.—The total number of miles of railroad in the State is 4,778.92, constructed at a cost of \$184,913,502.07. The average cost per mile was \$40,259.32, which includes equipments, buildings, and depot grounds. For the year ending June 30, 1886, the earnings of the roads were \$20,972,281.60, of which amount \$4,930,876.89 was from passengers, \$14,575,609.53 from freight, and \$1,465,795.18 from mails and express. The labor to produce these earnings has required the services of from 16,000 to 18,000 men, at an average of \$600.

Education.—The following is from reports relating to school matters in the State for the year ending June 30, 1886: Pupils enrolled in the public schools, 332,327; average daily attendance, 177,004. Teachers employed in public schools: male, 2,349; female, 8,699; total, 11,048. Average salary of teachers per month in public schools: In cities, male, \$106.58; female, \$39.90; outside cities, male, \$42.64; female, \$28.15.

Agriculture.—The Legislature of 1885 made provision for holding farmers' institutes by a yearly appropriation of \$5,000.

Militia.—The strength of the Wisconsin National Guard on Jan. 1, 1887, was 2,254. The last Legislature increased the compensation of officers and men while in camp of instruction, and appropriated \$9,000 per annum for overcoats and blankets. One company of infantry and one battery of artillery were organized by authority of the Legislature, making in all 37 companies in the organization at this time. There was expended for 1886, \$54,624.55.

Political.—The Prohibition State Convention was held at Madison on July 28. The following ticket was nominated: For Governor, John M. Olin, of Madison; Lieutenant-Governor, Charles Alexander; Secretary of State, C. M. Blackman; State Treasurer, A. C. Merriman; Attorney-General, E. W. Chapin; State Superintendent of Public Schools, J. J. Blaisdell;

Railroad Commissioner, Ole A. Ritan; Commissioner of Insurance, B. F. Parker.

The Republican State Convention met at Madison on September 8, and nominated the following ticket: For Governor, Jeremiah M. Rusk; Lieutenant-Governor, George W. Ryland; Secretary of State, Ernst G. Timme; State Treasurer, H. B. Harshaw; Attorney-General, C. E. Estabrook; State Superintendent of Public Schools, J. B. Thayer; Railroad Commissioner, Atley Peterson; Commissioner of Insurance, Philip Cheek, Jr.

The Democratic State Convention met on September 15, also at Madison. The following is the ticket agreed upon: For Governor, Gilbert M. Woodward; Lieutenant-Governor, John D. Putnam; Secretary of State, John C. Ludwig; State Treasurer, John A. Johnson; Attorney-General, George W. Bird; Superintendent of Public Schools, Edward McLoughlin; Railroad Commissioner, James Meehan; Insurance Commissioner, John Karel.

The Labor (or People's) State Convention assembled at Neenah on September 16, and put forth the following candidates: For Governor, John Cochrane; Lieutenant-Governor, George A. Lloyd; Secretary of State, J. P. Jasperson; State Treasurer, Frederick Höning; Attorney-General, John E. Thomas; Railroad Commissioner, Heinrich Zinn; Superintendent of Public Schools, J. K. McGregor; Insurance Commissioner, Rittner Stevens.

On November 2 the Republican ticket was elected. The following was the vote for Governor: Republican, 133,247; Democratic, 114,529; Labor, 21,467, of which 12,914 were cast in Milwaukee County; Prohibition, 17,089. A Democrat was elected to Congress from the Fifth District, a Labor candidate from the Fourth, and Republicans from the other seven. The Legislature of 1887 consists of 25 Republicans, 6 Democrats, 1 Labor man, and 1 Independent in the Senate, and 57 Republicans, 33 Democrats, 3 Independent Democrats, 6 Labor men, and 1 Independent in the House. At the November election a vote was taken on the proposition to confer the right of suffrage upon women at elections pertaining to school matters, and the same was approved by a vote of 43,581 for, to 38,998 against.

WYOMING. Territorial Government.—The following were the Territorial officers during the year: Governor, Francis E. Warren, succeeded by George W. Baxter, and he by Thomas Moonlight; Secretary, Elliott S. N. Morgan; Treasurer, William P. Gannett; Auditor, Perry L. Smith, succeeded by Mortimer N. Grant; Superintendent of Public Instruction, John

Slaughter; Attorney-General, Hugo Donzele mann; Insurance Commissioner, Joseph B. Adams. Supreme Court: Chief-Judge, John W. Lacey, succeeded by William L. Maginnis; Associate Justices, Jacob B. Blair and Samuel C. Parks, succeeded by Samuel T. Corn.

Financial.—The total assessed valuation of property in the Territory in 1880 was \$11,857,344. In 1886 it had increased to \$31,020,784. The rate of Territorial taxation for 1886 has been considerably increased over 1885, on account of appropriations made by the Legislative Assembly for permanent improvements, such as public buildings. The total aggregate indebtedness of the several counties, Jan. 1, 1886, was \$270,642.

Receipts and Disbursements.—The balance in the treasury Dec. 31, 1885, was \$31,175.45.

Educational.—In 1885 there were 83 public-school buildings, representing an outlay of over \$150,000. Number of schools, 134; teachers employed, 150; pupils enrolled, 4,354; average salary, per month, paid teachers, \$55.

Irrigation.—There were recorded within four months of the close of the summer in the district comprising the southeast portion of Laramie County more than five hundred canals and ditches, extending over 1,000 miles in length and covering at least 100,000 acres.

Mining.—Prospecting has been carried on in many localities during the past year with favorable results. A large number of companies have kept in constant employment a strong force of men in developing the oil-regions of central and northern Wyoming. A company has recently been formed for the purpose of erecting in Cheyenne smelting, reduction, and refining works.

Public Buildings.—At the last session of the Legislature, \$280,000, in bonds, was authorized to be issued, divided as follows: a capitol building, \$150,000, to be erected at Cheyenne; university, \$50,000, at Laramie City; and an insane asylum, \$30,000, at Evanston.

Political.—The Legislature met on January 12, and adjourned on March 12. The Democratic Territorial Convention met at Rawlins on October 2, and nominated Henry G. Balch for delegate to Congress. The Republican Territorial Convention met at the same place on October 5, and renominated Joseph M. Carey for delegate to Congress.

The Democratic candidate did not remain in the field. On November 2 the vote was as follows: Carey, 8,259; scattering, 1,113. The Legislature has 9 Republicans and 3 Democrats in the Council, and 10 Republicans and 14 Democrats in the House.

Y

YALE COLLEGE, RECENT CHANGES IN. New Administration.

Administration.—At a special meeting of the Corporation of Yale College, held on May 20, 1886, President Noah Porter presented his

resignation, and later in the same day the Rev. Timothy Dwight, D. D., Professor of Sacred Literature in the theological department, was elected to fill the office. The new

president is a grandson of the Timothy Dwight that was president of the college from 1795 till 1817. He was born in Norwich, Conn., Nov. 16, 1828, and was graduated at Yale in 1849, studied theology there from 1850 till 1853, and served as a tutor from 1851 till 1855. He then went to Germany, where he studied in Bonn and Berlin, in 1856-'58. In the latter year he returned to accept the chair of Sacred Literature and New Testament Greek in the Theological Seminary at Yale, and has since held it until his election to the presidency of the university. President Dwight has been better known for his work in connection with the college than for that outside. He has taken an active interest in its affairs, and by his personal efforts has largely influenced its growth. His ideas as to the future of the college were first set forth in a series of articles published in the "New-Englander," of which he became an editor in 1856. They appeared in 1870-'71, and were entitled "The True Ideal of an American University." The series was afterward published in pamphlet form, and attracted much attention. President Dwight was a member of the American Committee for the Revision of the English Version of the Bible, from 1878 till the completion of the work in 1885. His election as president of the university gave universal satisfaction—even those who preferred other candidates recognizing that these could not be elected, and that Prof. Dwight was a safe mean between the radical party, who favored the Harvard plan of unlimited electives, and the advocates of the old hard-and-fast curriculum. What is known of his ideas has led to the anticipation that, under his administration, the united growth of all departments of the university will be fostered, and that they will be made to strengthen one another, rather than that any should yield precedence to the purely collegiate departments. This idea was confirmed by the address of Prof. Dwight at his induction, which took place in the Center Church, New Haven, on July 1, 1886, in the presence of a large body of graduates, and of many distinguished guests, including the Presidents of Harvard, Princeton, Trinity, and Wesleyan, and members of the faculties of fifteen or twenty other colleges. The ceremony was introduced by President Porter, who, after a brief address, placed in the hands of the president-elect the charter and seal of the college, while those present confirmed the act by rising. After a congratulatory address in Latin by Prof. Tracy Peck, the new president delivered his inaugural. He began by quoting the letter of acceptance of the first President Dwight, his grandfather, dated Aug. 17, 1795, and called attention to the fact that, as at that time the institution was changing from a school into a college, so now the college seems to be developing into a university. He then said that the future university must be built on the lines of the already existing college, that

it would be necessary to begin with the lower or undergraduate department and work outward and upward, binding together with it the now loosely cohering professional schools, instead of thinking to begin at once with the higher departments. He spoke, in passing, of the relations of the president to the university, and said that, while he had thought it best to stipulate that he should do no teaching in the college, the office should never be allowed to sink to that of a mere business agent. He then touched on the needs of the growing university, gave his testimony to the value of the classics in a system of education, alluded to the recent changes in the curriculum (mentioned below) as affording opportunities for development, and closed with an acknowledgment of Christianity as the most precious inheritance left to the college by its founders, and a promise to keep it through all stages of future growth.

Curriculum.—In the beginning of the session of 1884-'85, a change in the course of study took effect in the academical department. Previous to that time every student in the college had about fifteen hours of recitations per week. This was entirely required work in the first two years, but four hours week in the last two years was "elective" work, chosen by the student from a list of about a dozen courses of study. By the recent change over half the work of junior year, and four fifths of that of senior year was made elective, and the study of modern languages was made to begin in the freshman instead of in the junior year, as before. The faculty express themselves as satisfied with this change, and many students have profited by it to take twenty or even twenty-five hours of work per week instead of the fifteen required of them.

New Buildings.—The Sloane Memorial Laboratory, which was opened in the spring of 1884, is situated on the south side of Library Street, between High and York, directly in the rear of the College Library. It is two stories and a half high, with high basement. The basement is built of freestone, and the rest of the building of common brick, with trimmings of pressed brick. It has a tower surmounted by a cupola. This laboratory is intended for work in physics alone; the projected Kent Chemical laboratory, which, with the Sloane, is intended to cover the usual range of university laboratory facilities, is mentioned below. The basement of the Sloane Laboratory contains store-rooms, rooms for special forms of investigation, an engine-room containing a seven horse-power gas-engine, and an Edison dynamo and battery closets. The first floor contains the large physical lecture-room, two stories in height, and seating about 200 students. It can be lighted with incandescent electric lights, so regulated that the process is visible to the student. The lecture-table is a solid pier of brick extending to the ground, and the lecturer has at his disposal electricity from either dynamos or batteries, gas, water, or a beam of sunlight,

which is introduced by means of a heliostat in one of the basement-windows, and reflected directly upward through the table. The lecture-room communicates directly with the apparatus-room, where all instruments, both for work and demonstration, are kept, and with the private workshop of Prof. Arthur W. Wright. In the rear of this there is a small room, partly floored with fine cement, for working with mercury. Here are the Torricelli pump, the apparatus for the distillation of mercury, and a special form of cathetometer devised by Prof. Wright, for speedy and accurate comparative measurements. Then there is a large work-room, where most of the students in practical physics are employed, two small work-rooms containing the new "earth inductor," and much interesting electrical apparatus, and a recitation-room seating about one hundred. The second and third floors are occupied by work-rooms of various sizes. Those on the first floor have numerous piers of masonry reaching to the earth, affording as solid a rest as possible for delicate instruments, and the windows are also fitted with projecting stone sills for a like purpose. One pier runs up to the roof of the building, and can be used for measurements of the velocity of light or others requiring long distances. The building was made a subject of special study by the Professor of Physics, and was built under his personal supervision, and abounds with little labor-saving devices too numerous to mention in detail. It was presented to the university by the Messrs. Sloane, of New York city, as a memorial of their father.

Lawrance Hall, the new dormitory, which was completed in the summer of 1886, is a continuation of Farnam Hall on the south, and stands on the College Street side of the quadrangle, fronting inward, like the other recent dormitories. It is five stories high, and contains four entries, each of which affords entrance to ten suites of rooms. Each suite consists of a study and two bedrooms. The material is brick, laid in black mortar, and trimmed with Oxford blue-stone and red "Corsehill" stone from Scotland. The basement is of hard "East Haven" stone. The building is as nearly fire-proof as possible, very little wood being used in its construction. The building is the gift of Mr. and Mrs. Francis C. Lawrance, of New York, and is a memorial to their son, Thomas G. Lawrance, of the class of 1884, who died while in his senior year.

Dwight Hall, which was opened in October, 1886, is intended for the use of the College Young Men's Christian Association and for other general religious uses of the college. It stands on the western side of the quadrangle, between Alumni Hall and the library, and was designed by the architect, J. C. Cady, of New

York, with a view to improving the architectural effect of the group of buildings. It is of brown-stone, irregular in shape, and two and a half stories high. The entrance is through an elaborate portico on the side of the building toward the campus, and on the opposite side is a large round tower with conical roof. The hall contains on the first floor a reception-room, finished in oak, which is also used as a reading-room, and four large rooms for class prayer-meetings, furnished respectively in butternut, walnut, oak, and cherry, with leather-upholstered furniture, and large fireplaces. On the second floor is a large hall for lectures, containing a valuable pipe-organ, and a library-room; and on the third floor are rooms for the curator of the building. Dwight Hall, named for the first President Dwight, is the gift of Elbert T. Munroe, of Southport, Conn.

The Kent Chemical Laboratory, the gift of Albert E. Kent, of the class of 1853, will probably be ready for use in January, 1888. It will stand on the corner of High and Library Streets, and is to be of stone, 94 by 71 feet, two stories high, with high basement. It will contain three laboratory-rooms, each 40 feet square, a lecture-room seating 200, and a recitation-room seating 60, and a private laboratory for the use of Prof. F. A. Gooch, who has planned the building.

Another recent addition to the college campus is a bronze statue of Prof. Benjamin Silliman, the elder, presented by several personal friends of his, which was unveiled on the day preceding the commencement of 1884. It is the work of Prof. John F. Weir, of the Art School, and stands in front of Farnam Hall.

Athletic Grounds.—In 1881 a movement was begun to secure a permanent athletic field for the college, and this resulted in the purchase of twenty-nine acres on Derby Avenue, just outside of the city limits, and within twenty minutes' walk of the college dormitories. The "Yale Field Company" has been duly incorporated to manage the property until it is free from debt, when it will be presented to the university, to be held in trust forever, for out-of-door sports, under such restrictions as may be mutually agreed upon between the grantors and the corporation. Sixteen acres of the land are available for use, and this has been graded, and two ball-fields laid out, which can also be used for foot-ball or lacrosse. The field also contains tennis-courts, a fast quarter-mile cinder track, a house used for dressing-rooms, and a large grand stand, the gift of William H. Crocker, of San Francisco, a graduate of the Scientific School in the class of 1882. It is proposed to add a cricket-field and several small club-houses. Over \$50,000 has been expended on the field, and the debt is at present \$21,000.

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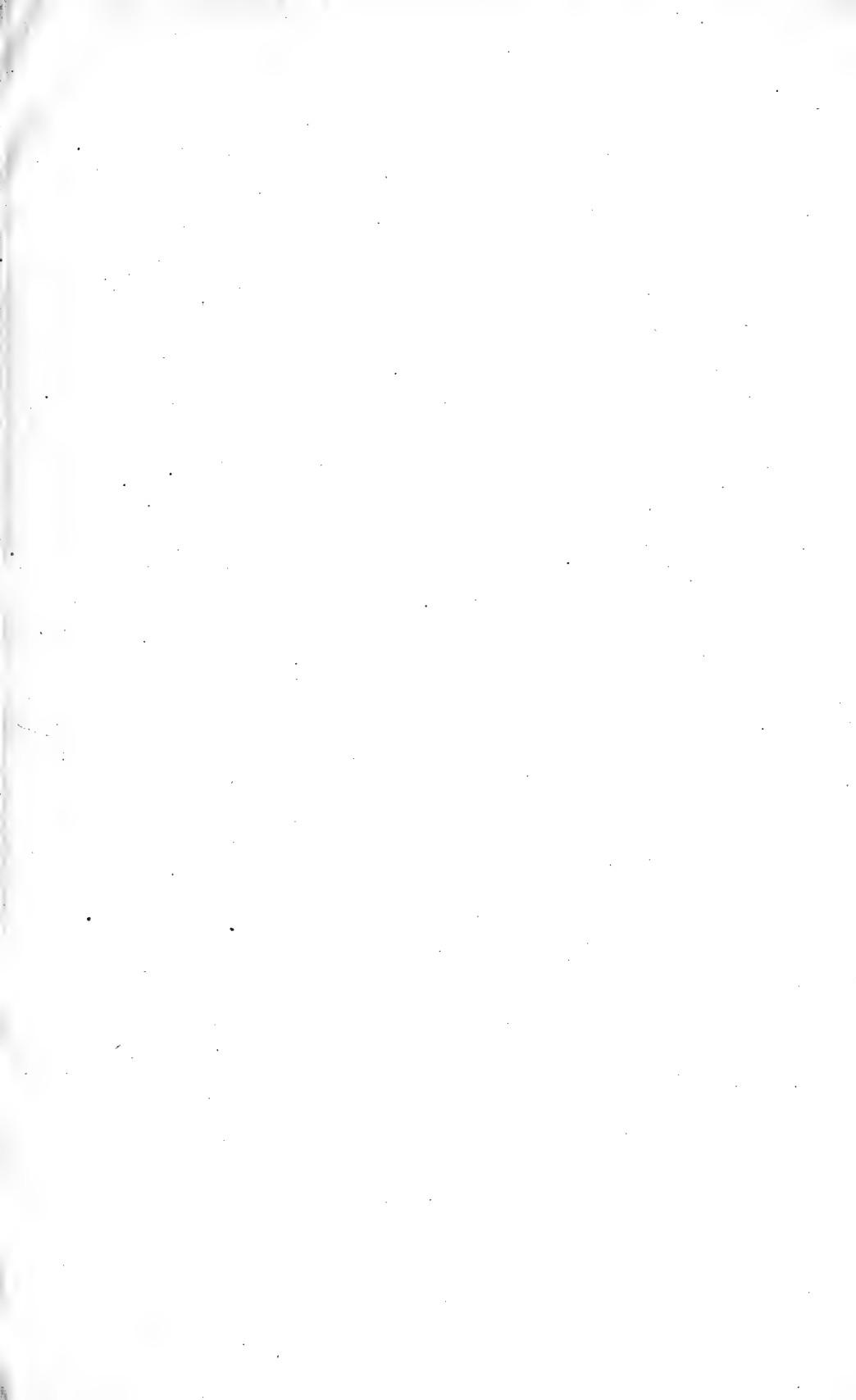
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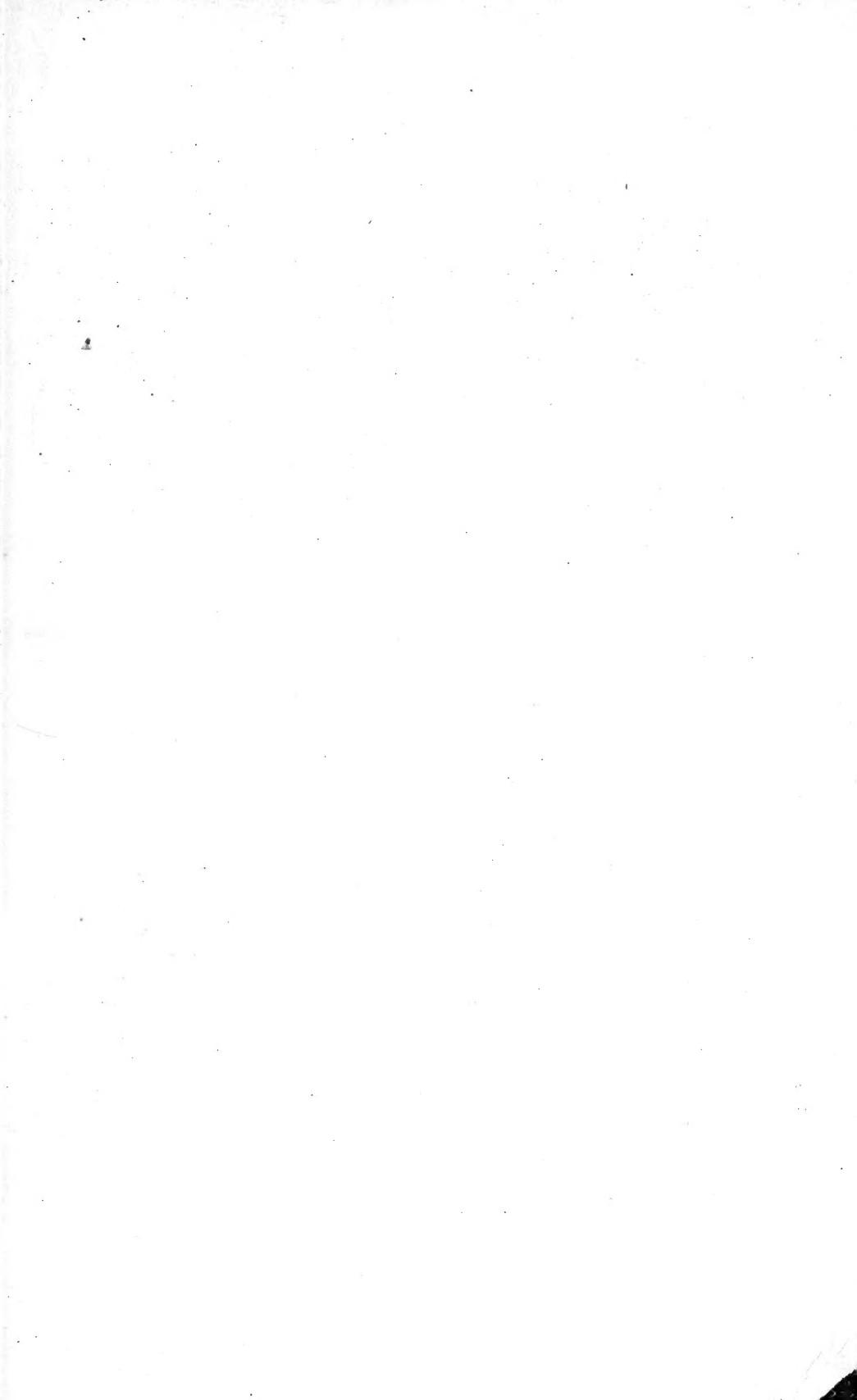
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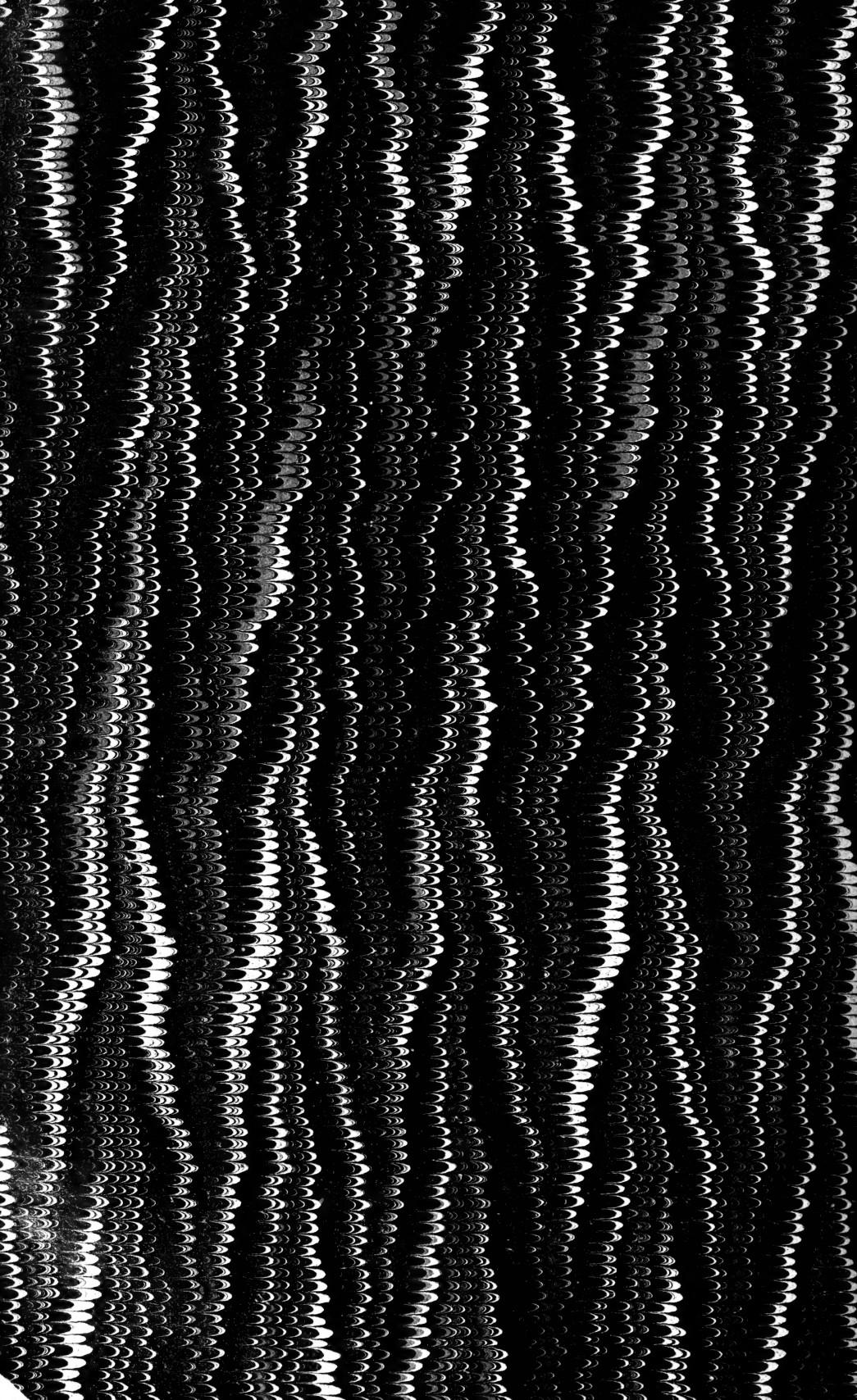
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